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ABSTRACT

Papers from the Hiroshima/Organisation for Economic Cooperation and Development Meeting of Experts on Higher Education and from the March 1981 Seminar on Innovations in Higher Education in Comparative Perspective are presented. In January, representatives from Sweden, the United Kingdom, Austria, the United States, and Japan met to discuss and study common problems as part of a comparative study of innovations in higher education, and in March scholars on higher education from Europe, Korea, and the United States met. Papers and authors are as follows: "Innovations in Higher Education: Issues, Definitions, and Japanese Experiences" (Kazuyuki Kitamura); "Inter-Country Exchange and Co-operation on Innovative Approaches to Higher Education 'The Swedish Case'" (Lennart Levin); "Innovative Approaches to College Teaching in the United States" (K. Patricia Cross); "The Development of Non-University Higher Education in the United Kingdom" (Norman Lindop); "Supplement to Sir Norman Lindop's Contribution" (Edward L. Houghton); "Curriculum Reform as an Instrument for the Promotion of Innovations: Experiences and Intentions in Austria" (Sigurd Hollinger); "Curriculum Development at Tsukuba" (Fujio Ikado); "The Current State and Problems of Teaching Methods at Universities and Colleges in Japan" (Takashi Sakamoto); "Useware of OHP" (Kunihiro Suetake); "Factors of Achievement and Failure in European Higher Education" (Ladislav Cerych); "Innovative Teaching in Higher Education: An Asian Case" (Hong, Woong Sun); "The Ups and Downs of Innovations in U.S. Colleges and Universities" (Janet Ruyle); and "Linkages between Universities and Non-Universities" (Frederick K. Kintzer). (SW)

ED213322

Reports of the Hiroshima/OECD Meeting of Experts
on Higher Education and the Seminar on
Innovations in Higher Education

INNOVATIONS
IN
HIGHER EDUCATION

—Exchange of Experiences and Ideas in International Perspective—

1981

Research Institute for Higher Education
HIROSHIMA UNIVERSITY

HE 014 779

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Preface

Since October 1980, a four year research project: *A Comparative Study on Innovations in Higher Education – With special emphasis on curriculum development and teaching methods* – has been initiated by the Research Institute for Higher Education, Hiroshima University. This project has been conducted in affiliation with a newly sponsored Co-development Project from the OECD Center for Educational Research and Innovation (CERI), for the purpose of focussing on cooperation and exchange of experience among a limited number of countries (Austria, Japan, Sweden, United Kingdom and the United States) around the broad subject of innovative approaches to higher education.

As a first step for this study, the *Hiroshima OECD Meeting of Experts on Innovations in Higher Education – Exchange of Experiences and Ideas* was sponsored by Hiroshima University with the support of Japanese Ministry of Education, Science, and Culture in January 1981. Five representative experts on higher education from these four countries and the OECD Secretariat as well as 16 Japanese experts were invited to discuss and study common problems.

Thanks to the active cooperation of all the participants, I am convinced that this meeting has proved to be extremely profitable for initiating this enterprise to analyze and evaluate innovations in higher education from an international perspective. The first part of this report is the record of this Meeting.

In March 1981, Hiroshima University held another *Seminar on Innovations in Higher Education – In Comparative perspective* – inviting eminent scholars on higher education from Europe, Korea, and U.S.A. as a second step. This seminar also has been very useful for our purposes. The second part of this report is a record of this second Seminar.

This report is edited by the Research Institute for Higher Education. All of the papers read by the invited guests were printed after minor revisions by the authors. A summary report of the first part of this report was prepared by Mr. Georges S. Papadopoulos, who took the role of the rapporteur.

I should like here to express my sincere gratitude to all the participants who contributed greatly to the successful Meeting and Seminar, as well as to all of the people concerned with the preparing this report.

As we are also planning new seminars, we hope to publish new reports on the progress made in our on-going project in due course.

It is our sincere hope that this report may be useful for those who are deeply concerned with the important problems of higher education for the future.

October 1981

Keiji Inaga
Director
Research Institute for
Higher Education
Hiroshima University

INNOVATIONS IN HIGHER EDUCATION

– Exchange of Experiences and Ideas in International Perspective –

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PART I

THE HIROSHIMA/OECD MEETING OF EXPERTS ON HIGHER EDUCATION

27 – 29 January 1981

PROGRAM
for
The Hiroshima-OECD Meeting of Experts on Higher Education

Theme: Innovations in Higher Education – Exchange of Experiences and Ideas

Period: 26, Monday – 29, Thursday, January 1981

Participants:

(A) Representative experts from four OECD member countries and one from OECD Secretariat	6
(B) Japanese experts	16
(C) Observers and Secretariat	10
total	32

– Schedule –

January 27 (Tuesday)

12:00–14:00	Visit to the Research Institute for Higher Education (Lunch and Orientation)
14:00–14:30	Formal Visit to President of Hiroshima University
14:30–17:00	**Public Lecture** Lecturer: Dr. K. Patricia Cross (U.S.A.)
18:00–19:30	Reception given by the President
19:30–20:00	Working Group Meeting

January 28 (Wednesday)

9:00– 9:30	Opening Ceremony Opening Address – Mr. H. Takeyama (President) Remarks – Mr. I. Amagi (Japanese Representative to the OECD/CERI) Mr. G. Papadopoulos (OECD Secretariat) Mr. M. Watanabe (Ministry of Education, Science and Culture, Japan)

9:30–12:00 **Session I: Innovation in Higher Education**
Chairman: Mr. Michiya Shimbori (Japan)
Reporters: Mr. Kazuyuki Kitamura (Japan)
Mr. Lennart Levin (Sweden)
12:00–14:00 –Recess–
14:00–17:00 **Session II: Curriculum Development**
Chairman: Mr. S.R.C. Jones (U.K.)
Reporters: Mr. Edward Houghton (U.K.)
Mr. Sigurd Höllinger (Austria)
Mr. Fujio Ikado (Japan)

January 29 (Thursday)
9:00–12:00 **Session III: Teaching Method**
Chairman: Mr. Tetsuya Kobayashi (Japan)
Reporters: Mr. Takashi Sakamoto (Japan)
Mr. Kunihiro Suetake (Japan)
12:00–14:00 – Recess –
14:00–15:00 **Session IV: Conclusion**
Chairman: Mr. Isao Amagi (Japan)
Rapporteur: Mr. Georges Papadopoulos (OECD)
15:00–15:30 Closing Ceremony
15:30–17:00 **Meeting of National Representatives**
Chairman: Mr. Georges Papadopoulos
Participants: All national representatives from Austria, Japan, Sweden, United Kingdom

LIST OF PARTICIPANTS

(Alphabetical Order)

– Japanese Participants –

Amagi, Isao	Director General, Japan Society for the Promotion of Science. Member of CERI Governing Board
Amano, Ikuo	Associate Professor, University of Tokyo
Ikado, Fujio	Professor, University of Tsukuba
Ikeda, Hideo	Professor, Hiroshima University
Inaga, Keiji	Director, Research Institute for Higher Education, Hiroshima University
Kaneko, Tadashi	Head of Section, National Institute for Educational Research
Kitamura, Kazuyuki	Professor, Research Institute for Higher Education, Hiroshima University
Kobayashi, Tetsuya	Professor, Kyoto University
Miyake, Akira	Professor, International Christian University
Mori, Kazuhiro	Associate Professor, Hiroshima University
Sakamoto, Takashi	Professor, Tokyo Institute of Technology
Shimbori, Michiya	Professor, Hiroshima University
Shimizu, Izo	Professor, Obirin College
Suetake, Kunihiro	Professor, Tokyo Institute of Technology
Takeyama, Haruo	President, Hiroshima University
Tomoda, Yasumasa	Associate Professor, Osaka University

– Non-Japanese Participants –

Cross, Patricia	Distinguished Research Scientist, Educational Testing Service, Berkeley. Visiting Professor, Harvard Graduate School of Education, U.S.A.

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Jones, S.R.C.	Department of Education and Science, United Kingdom
Levin, Lennart	Head, Educational Research and Development Division, National Board of Universities and Colleges, Sweden
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INNOVATIONS IN HIGHER EDUCATION

– Issues, Definitions, and Japanese Experience –

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I

For this Hiroshima-OECD Experts' Meeting on Higher Education, the topics of discussion proposed by the Japanese study group is "Innovations in Higher Education – Exchange of Experiences and Ideas", and all of the national representatives and experts are invited to read a paper outlining the major innovations in higher education in their own countries. Among the reasons why we have chosen this topic, the following two should be emphasized:

First, the study theme of the Japanese group is "A Comparative Study on Innovations in Higher Education – with special emphasis on curriculum development and teaching methods". This theme was selected because curriculum and teaching methods are one of the most important, but the least developed research areas in Japan. Therefore, it may be quite beneficial for us to learn about experiences and ideas from participating countries.

Secondly, in most of the industrial societies, as in Japan, a number of important reforms and innovations have been introduced during the past decades. At the beginning of 1981, it may be an appropriate time for us to reflect upon and analyze these attempts as well as to evaluate and compare their achievements and effectiveness after a period of trial and experiment.

In order to discuss the topic of innovations in higher education, it may be necessary to try, first of all, to clarify the meaning of the term: "innovation", and to limit the scope of discussion.

Dictionaries tell us that innovation means "something new or different introduced" (Random House), or "the introduction of novelties; the alteration of what is established" (O.E.D.). So the keywords to describe any innovation might be, "new and different" from traditional practices or what we have done before.

But, it should be noted that this "newness" and "difference" is a relative phenomenon: "What is new in one place is old in the next. The same might be said of time. Much that we call *innovation* is *renovation*, trying the ideas of the past once again." (A. Levine, 1980)

This relativity may also apply to value judgements. As an OECD report on innovation (OECD/CERI 1973) mentions, innovation is something *better* than what it replaces, but while innovation may well mean improvement for some, it may not alter conditions for others, and it may even worsen conditions for others again.

"Innovation" is, as the OECD report (1973) defines, "a deliberate attempt to improve practice in relation to certain desired objectives", and Collier (1974) proposed a definition which combines both these aspects: the innovation involves "changes which are deliberately planned or adopted; they may not be new in an absolute sense but are perceived as new by the members of the community into which they are introduced".

The OECD report suggests four categories of innovation as a means of analysis [(1) objectives and functions, (2) organisation and administration, (3) roles and role relationships, (4) curriculum]. These are distinguished at the following two levels: (a) the overall educational system – the *general* level, and (b) the individual school and its environment – the *institutional* level. These categories, and especially, the category of *curriculum:* that is, "innovations mainly concerned with curriculum, its aims, content, methods, evaluation, material and internal organization of instruction" both at the general level and at the institutional level" will be the focus for our discussion at this Meeting.

For this Meeting, we propose to focuss on the following questions as the main issues of discussion:

(1) What kinds of innovations have been introduced? What were the objectives of these innovations? And how were they implemented?

(2) How far did the innovations succeed in achieving the objectives? Have the innovation been effective in subsequent experiments or innovations?

(3) What will be the lessons from all these experiences which may be useful for the future thinking of the 1980s? And concerning what aspects do we

need more research?

Based on these questions, we hope that we will exchange and share experiences and ideas in our respective countries with regard to innovations in higher education. Then, we hope to discuss the common issues and challenges from a comparative international perspective, and hopefully, to develop perspectives for future innovations in higher education. It is also hoped that new horizons for our study projects will be opened through the cooperation of the participants.

II

The decade of the 1970s in Japanese higher education can be called "the age of reform and innovation" after the turbulent period of "expansion and crisis" during the 1960s. Since the beginning of the 1970s, a series of important reforms and innovations has been introduced by the Government at the overall educational system level. Also a number of reforms and innovations has been attempted at the institutional level during the same period, but as these will be reviewed by other Japanese reporters, here I will confine myself to the general level.

Statistically speaking, Japan may be said to be one of the most highly "schooled" societies in the world. Over 90 percent of compulsory school leavers go on to upper secondary schools, and nearly half of the college age group would like to go on for further study. In the 1979 academic year, student enrollment exceeded 2.2 million, with more than 1,000 institutions of higher education (including 443 universities, 518 junior colleges, and 62 technical colleges), admitting 38 percent of the college-age group. If we add the 320,000 students who are studying at about 4,500 non-college types of postsecondary institutions, more than half of the young people in the nation are receiving some sort of education beyond the high school. (Kitamura, 1979).

To accommodate the enormous educational demands, Japanese higher education has expanded to the point where it is well into what Martin Trow (1974) calls the "mass" stage. Japan had already passed "the threshold of mass higher education" (Cerych and Furth, 1973) by the end of the 1960s in enrollment figures. And structurally as well, there can be no doubt that Japanese higher education is now in the middle of the *mass* stage. The size of student enrollments, the diversification of institutions and programs, and the variety of academic levels available, all confirm this fact.

In the 1970s the Japanese government, for the first time since World War II, proposed the development of a definite plan for higher education. Although a number of specific policy statements had been published by the government before 1970, no comprehensive public policy for higher education was designed until the Central Council for Education, an advisory body to the Minister of Education, released its comprehensive report in 1971. The report, *Basic Guidelines for the Reform of Education*, was called the "Third Educational Reform" by the planners. These guidelines have had an important influence on the steps that the Ministry of Education has taken during the 1970s. The Central Council's report ranged over the entire educational system, but the major focus was on higher education. Among other reforms, it proposed the formal differentiation of higher educational institutions into several distinct types according to their basic characteristics and their objectives; a greater effort at equalizing opportunities for higher education through aid to private institutions, loans for students, and the establishment of new types of institutions relying on mass media for instruction; reform of the entrance examination system. (Ministry of Education, 1972).

The principles of the Council's recommendations may well be summarized as the following four directions for educational change: namely, flexibility, diversification, openness, and planning (Amano, 1980). The Government has attempted to introduce these principles into "the rigid, inflexible, and closed structure" of traditional higher education in Japan.

To promote the principle of flexibility, the Ministry revised the regulations governing curricula and academic requirements for institutions of higher education, including junior colleges, universities, and graduate schools. The purpose of the revision was to allow for such innovations as the flexible organization of general education curricula, the exchange of academic credits among junior colleges and universities, the transfer of students, the establishment of new graduate programs that are independent of undergraduate faculties, and so on.

Reflecting the experience of the 1960s in American higher education, Alexander Astin points out that the innovations were possible primarily because higher education was growing so rapidly that new courses, programs, and institutions could be added on with little difficulty. But, according to him, many innovations and reforms were either transitory or simply cosmetic changes which did not really affect educational practices at most institutions (Astin, 1980).

Japanese higher education seems to be in similar situation. Through the revision by the Government of the regulations governing curricula and requirements, a number of new curricula and courses both at undergraduate and graduate levels were adopted by some universities. However, these new courses, programs, and institutions, seem, as a whole, to be just *added on* to the established structure of traditional higher education and they did not constitute fundamental change in mainline academic programs.

Concerning the principle of diversification, although Council's proposal of the formal differentiation of higher educational institutions were cancelled, several important innovations in higher education were introduced. Notable among these was the establishment of a new national university with an innovative organizational structure at the new Tsukuba Research City. Quite different from the traditional university where the faculty (*gakubu*) assumed organizational responsibility for both research and teaching, the University of Tsukuba is composed of differentiated organizations for research ("institute," *gakkei*) and teaching ("cluster," *gakugun*) that are intended to allow comprehensive research to be conducted across the boundaries of traditional disciplines. In addition, the university has created more centralized decision-making organs than the traditional Japanese university has, for example, an outsiders' advisory council, vice-presidents, and a university-wide personnel committee have been established.

In addition to Tsukuba, the Government has established several new types of universities, including new Universities of Technology and Science, which admit graduates from technological colleges (*kôtô senmongakko*) whose graduates are not widely accepted by the traditional universities, and which also have special graduate programs that provide in-service training; and new Universities of Education whose main purpose is in-service training of school teachers at the graduate level.

Academic changes take, as JB Lon Hefferlin (1971) suggested, three general patterns: (1) the creation of new institutions, (2) the radical transformation of existing institutions, or (3) the piecemeal alteration of institutional programs. The Japanese government has chosen the path of the creation of new institutions and new laws rather than the transformation of existing structures and established practices. And again according to an American study (Levine, 1980), the creation of new organizations as a model university is the easiest way to establish a non-traditional institutional mission, as well as effective for emulation, but, it is by no means a guarantee of success for a non-traditional mission. This findings may partly be applicable to the Japanese case.

It is true that the University of Tsukuba, in spite of many difficulties in its initial period, has attracted a number of eminent scholars, and great emphasis has been placed on the interdisciplinary research and curriculum, new types of graduate courses for in-service training, a variety of international academic programs, and so on. However, it seems that these innovative approaches adopted by the University have not had so great influence on other traditional universities so far. The University of Tsukuba has certainly become the most prestigious non-traditional university in Japan ever created by the government with an enormous investment of resources. However, it will still take more time for the young University to become a strong competitor with other prestigious traditional universities such as the University of Tokyo.

To further the principle of planning, the Central Council urged the development of a long-range program for the general design of higher education and the establishment of an appropriate study unit for its planning. Based on this recommendation, a planning committee was established in the Ministry of Education, and in 1976 it submitted its higher educational plan for the period 1975--80. The committee advocated a moderate expansion of enrollments, to be achieved mainly through the establishment and improvement of national universities serving local areas and responding to urgent social needs (as for medical doctors and teachers) while restricting the increase in the private sector which had long been a major factor in achieving quantitative expansion in Japanese mass higher education.

The committee also submitted in 1980 its second plan for the period 1981–1986, which continues the policies of the previous period, especially the firm constrictive policy line. Since there had never before in the post-war period been such concrete planning ever implemented, the introduction of this strong policy of control and planning by the Government was really a drastic change for Japanese higher education.

At the same time another significant development of the seventies was the passage by the Diet of a new law, the Higher Vocational Schools Law (*Senshu-Gakko-Ho*). The purpose of this law is to elevate the status of non-degree post-secondary institutions. Altogether, in Japan there were more than 8,000 of these institutions, providing various kinds of vocational and technical training to more than 1 million students. In spite of their size and quality (some of these schools offer more advanced educational programs than junior colleges and universities), they have long been neglected, enjoying neither public support nor legal recognition as educational institutions. Following the enactment of this law, some of the more qualified non-degree postsecondary schools (they are called *"senmongakko"* in place of the name once known as "miscellaneous schools" or *kakushu-gakko*) were given legal status and included in the category of higher education. This change reflects Japanese society's quest for a greater diversification of higher education beyond the limits of the colleges and universities.

Since the enactment of the Higher Vocational Schools Law (Senshu-gakko ho) in 1975, both the admission rate and the number of students to these non-degree postsecondary institutions have increased steadily, and it is apparent that a shift of orientation among students from universities to non-degree institutions is occurring. It may be too early to conclude that this shift will endure, exerting a permanent influence on the future flow of students. However, if it is so, this policy will be successful in absorbing a significant proportion of the youth into the less costly non-university postsecondary institutions rather than by an increase in costly traditional universities and colleges. In addition, because of its flexible and diverse nature, much is expected of the higher vocational schools as one of the most promising institutional types for Japan's postsecondary education.

To advance principle of openness, the Government hopes the University of the Air will become a major innovation. The University was once intended as an alternative system of higher education for the purpose of expanding educational opportunities by means of communication, that is as a substitute or supplement to traditional higher educational institutions. However, it is now going to be "a core system of higher learning especially for the life-long education of people who feel a need for self-retraining through experiences in their daily life". If it is successful, it is also expected that the appearance of UA will have a strong impact on traditional universities so as to stimulate innovations among them for the following reasons (Nishida, 1980):

(1) As UA provides open access to knowledge of high quality for everyone, conventional universities will be forced to review their raison d'être by clarifying

the significance of full time schooling and revising realities as such.

(2) As UA can invite eminent instructors from any institutions, the mobility of scholars and credits will be promoted over the wall of conventional universities.

(3) As a result of the UA's advanced study of the teaching-learning process, methods of composing optimum processes of instruction, promotion and evaluation of learning will become popular in all universities and qualitative innovation in classroom teaching may take place in the long run.

For the establishment and management of the University of the Air, Japan can learn much from Britain's Open University. But, as Martin Trow cautions, we should use it as a model "only with very important reservations and in awareness of the enormous difference between our systems of higher education" (Trow, 1971). According to Trow, Britain's Open University is an effort to introduce a certain flexibility into a relatively small, elite, somewhat constrained university system, and OU is a response to a kind of demand for access that is inconvenient for the existing university system, a safety valve which allows the system to avoid basic structural changes. The "same patterns" introduced into the United States as part of basic structural changes arising out of the move to universal access engender a very different set of problems.

Trow's caution may also be useful for our consideration of the future of the Japanese U.A. If the U.A. remains merely a substitute or supplement to traditional higher education only for the purpose of expanding educational opportunities by means of mass communication, it may become no more than another "add-on" to the existing structure of mass higher education.

III

In this paper, I have attempted to clarify the meaning of the term "innovation", and to identify the main issues for discussion, and then I have described and evaluated the major developments of innovations which have been introduced at the general level into Japanese higher education.

What then should be the lessons to be drown from our experience?

Some of the lessons from our historical analysis of university reform in Japan (Kitamura and Cummings, 1972) are these:

(1) Historically, reforms and innovations in higher education have occurred in conjunction with a radical reform of the entire education system.

(2) Traditionally university reform has been initiated and effected by central authorities in the government, and in the present period this pattern has been repeated.

(3) Although the government, providing it is united, is a formidable force in Japanese society, even so, in order to push through educational reform, it requires a certain level of support from outside groups and the educational world.

Even in the United States where decentralization is so strong in education, historically reform and innovation in higher education has come from without, not from within (Hefferlin, 1971). Alexander Astin (1980) concluded with three valuable lessons from the experience of the 1960s in American higher education:

(1) A major obstacle to innovation and change is faculty conservatism.

(2) Institutions *can* change, but such changes are usually imposed upon the institution by external agencies rather than developed internally as part of a rational educational plan.

(3) Many so-called innovations in higher education were introduced as "add-ons" rather than as changes in basic educational practices and policies. Such add-ons are very difficult to achieve when the higher educational system is not in a state of rapid expansion.

These facts suggest to us that major innovations rarely occur without the initiative or support of the external authorities who can bear both the power and necessary money for their realization. Therefore the role of the government (or the public authorities) as an agent of innovations is very important. Because higher education, both in the public and private sectors, is increasingly dependent upon public money, the will of the government is increasingly critical in determining which innovations will or should be initiated. Therefore, the policy-making process for innovations should be an object for careful study.

These observations also suggest that the dissemination of innovation is always more difficult than its implementation. It is true that the success of the implementation of an innovation does not guarantee its effective dissemination. We are aware that some innovations proved to have a significant impact on many institutions, while other innovations did not cause any changes in other places. Analysis on the success or failure of innovations should also be an important object of study.

In order to make innovations effective, more pragmatic research is absolutely necessary concerning a comprehensive process of innovations in the terms used by the OECD Report, "a planning-research-development-diffusion" process –, as well as on the tactics and strategies for innovations which can introduce fresh and dynamic concepts into the basic structure of higher education.

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INTER-COUNTRY EXCHANGE AND CO-OPERATION ON INNOVATIVE APPROACHES TO HIGHER EDUCATION. "THE SWEDISH CASE".

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Introduction

This rather hastily compiled working paper is the Swedish contribution to the Hiroshima Seminar, the purpose of which as I understand it is to be the first step towards a scheme of international co-operation presenting many opportunities and openings.

The participants have been called upon to "outline what they believe to be the major innovations in higher education in their own countries which will serve as the exchange of experience and views from an international perspective". This invitation and, similarly, the rather generally phrased heading of the activities planned, suggest the following among other things. (a) The aim of the Hiroshima Seminar should be to delineate the problem field and to provide a structure for further co-operation. (b) The activities are aimed more at a practical/pragmatical exchange of thoughts and ideas than at a joint research and development project (though of course this need not prevent the innovations penetrated from being research based). This being so, a word of caution might serve as a word of introduction: Comparisons between systems of higher education (or parts of such systems) generally tend to be descriptive and somewhat superficial in character. Qualitative comparisons of some depth necessarily have to be founded on analyses of the functions of higher education *in relation to* various characteristics of the surrounding society: its social, demographical and political structure, etc. If this is not achieved, there is a risk that differences between countries found in comparative studies become bewildering rather than enlightening.

Higher education in Sweden today

Under this somewhat pretentious heading I want to draw attention to various phenomena which have come to characterize Swedish higher education of late and which I believe should provide a background to retrospective or forward-looking studies of Swedish higher education and to comparisons of tertiary education in Sweden and other countries.

Economically speaking, Sweden is now in a new and hitherto completely untried situation. Our international debts have assumed such proportions that the Government has been forced to undertake extraordinary measures of retrenchment in all sectors of the community, higher education included. The Economization Bill presented recently entails very far-reaching measures affecting higher education finance. This Bill is mainly concerned with the coming fiscal year, but looking three years ahead one can discern the possibility of not just individual courses or educational programmes but of complete higher education establishments being closed down. This provides quite a brutal contrast to the period of student growth and financial expansion during the first half of the 1970s. Planning for renewal in this situation – and it has been categorically declared that the work of renewal must not come to a halt-will require the development of new techniques and approaches. Redefinition of priorities has become a key concept; development in one quarter must be matched by cuts elsewhere. The new situation is not improved by the prospect of the large cohorts of young persons who are now attending upper secondary school and will be applying for some form of higher education during the 1980s being *disproportionately* numerous for a number of years; reference is currently being made to a "juvenile hump". As an emergency solution to this particular planning problem one can of course contemplate an improvement of higher education opportunities for upper secondary school leavers during a transitional period *at the expense of* adult students. But a measure of this kind, rational as it may seem in the national economic perspective, would conflict with one of the purposes underlying the recent reform of higher education, which was to admit new student categories. In the new situation now facing us, goal conflicts of this kind will probably be hard to avoid.

Swedish higher education underwent a substantial organizational transformation as a result of the above mentioned reform, which was "implemented" as from 1st July 1977. The most conspicuous changes – innovations, one might say – are on the organizational plane, and the reform has indeed been accused, partly on false premises, of giving priority to questions of organization at the expense of questions relating to the form and content of instruction. Thus the reform included, as the result of a political compromise, a regionalization of Swedish higher education. The country was divided into six higher education regions and each region was given its own board of higher education. In other words, the Swedish higher education system was made to include an additional level, and its constituent levels are now as follows: Ministerial (Ministry of Education), Central (National Board of Universities and Colleges), Regional, Local (universities and colleges), and Institutional or Departmental.

The reform was aimed at making all post-secondary education administratively uniform, and there can hardly be any doubt that ideas concerning efficiency gains and economies of scale formed part of the general philosophy of reform. It should be added that the reform was also aimed at decentralizing powers – and responsibilities! – to regional and local levels and at giving the community a voice in various higher education agencies and committees etc. A great deal has been written and is still being written about the reform of Swedish higher education, its underlying intentions, its inauguration and its results so far. The point I wish to make here, having been able to observe the various phases of the reform from an excellent coign of vantage, is that an "innovation" is a very dynamic and elusive phenomenon. As I remarked earlier, it implies value judgements (There are those who argue that the reform of Swedish higher education did not involve *anything* new and that *everything* (sic) formally introduced on 1st July 1977 had previously existed and been tried in one form or another in some part of the higher education system), and secondly it is so dependent on circumstances in the immediate environment that generalizations relating it to other environments and education systems are often impossible or at least problematic. It is to be hoped that this rather defeatist attitude concerning the applicability of innovations to other education systems and to new situations is exagerated. But the purpose of this introduction has been (a) to hint at the complexity of the innovation concept and (b) to give a rough outline of the position of higher education in Sweden today, which as I have said is characterized by efforts to obtain a clear picture of the effects of the reform, at the same time as a completely new and very austere economic situation is imposing new and difficult conditions on the planning of higher education as regards both research and teaching.

The crisis of Swedish higher education

In Sweden lately there has been a debate concerning the "crisis" of higher education. The main topics of this debate have been the decline in recruitment for research training and the allegedly poor quality of undergraduate education. One of the scapegoats in the latter context has been the organization of studies introduced under the reform, whereby the individual student within a particular faculty can choose an individual course, i.e. a course of studies not necessarily forming part of an educational programme leading up to a particular qualification or profession. Courses of this kind, it is argued, have made teaching superficial. Higher education has sometimes been described as comparable to upper secondary school studies (advanced or otherwise). New types of examination and project or problem-oriented teaching have quite often been pointed to as the main causes of declining standards, though sometimes vaguer reference is made to the degrading effects of "progressive education". Many other countries have their counterparts to this type of debate, which is often hard to manage in purely intellectual terms because of the rarity of stringent specifications of the type of evidence on which qualitative judgements are based. Where Sweden is concerned, I would like to round off with two remarks on the subject of standards. (a) Our knowledge of what students actually learn in various connections is very limited. It seems reasonable to assume that different types of test or examination have different results. (b) A scrutiny of Swedish higher education by the OECD in 1979 contained many useful observations and remarks, but it did not confirm that the quality of education was poor by international standards. Despite this complexity of the question of quality, I have based this working paper on the assumption that the quality of Swedish higher education is not exceptional in either direction.

I shall now turn to consider actual or desirable innovations, very briefly, with reference to three of the themes stated in document CERI/TA/80.05 (i, iii and v).

(i) New purposes and expectations for post-secondary education

The much debated and internationally rather well-known Swedish admission policy may serve as an example of an "innovation", at least in a long-term perspective, that is being reconsidered today in some quarters.

In an international perspective Swedish educational policy – and admission policy in particular – is generally viewed as extremely "radical". Social equality as a goal has dominated in Sweden more than in most other countries. According to some authors there is even justification for speaking of an obsession with equality in Sweden over the last 20 years. The Swedish centralized admission scheme, the mechanics of which I leave aside here, is meant to be the materialization of the liberal concept of educational opportunity. However, according to a recent evaluator of the admission procedure, it might as well be viewed as the most visible expression of conformity and formalism in Swedish admission policy.

> "By means of computerized admission routines flexibility is made impossible and the link between applicants and institutions of higher learning – necessary to inform, stimulate and interact in the complex process of educational choice – is eclipsed or at least made more difficult and formal. There is ample evidence that the present computer-based admission procedure has counteracted strivings for flexibility in the performance of the admission rules. Due to the fact that the entire admission procedure occurs in an impersonal and routine system, there are risks that certain individuals become trapped by the system."

In my opinion the Swedish admission system provides an interesting example of the use, in a laudable and urgent endeavour – that of enhancing quality by increasing higher education opportunities – of a method or mechanism which proves to be unwieldy and expensive. It now seems, however, as though the system is being challenged not only on purely technical and administrative grounds, but also to some extent with reference to the original purpose of what, at least by international standards, was an extremely liberal philosophy of admissions. Naturally enough, this question is also linked with the earlier question concerning the quality of higher education. It would be useful for Sweden to share the experience of other participant countries concerning admission policy and its operationalization.

The question of new purposes and expectations is a big one and to no small extent a political issue. Generally speaking, the Government and Riksdag (the latter being the Swedish Parliament) expect education to be carried on at lower cost and without any deterioration in quality. In principle this can be accomplished by limiting admission of new students to a large number of courses and educational programmes, and also be reducing *per capita* expenditure. The latter expedient is likely in many cases to entail larger teaching groups and greater measure of one-way communication and *ex cathedra* teaching. Students probably have contrary expectations; they have to some extent become "addicted" to various teaching procedures within the small group. On this point, however, different teaching experiments have produced contradictory findings.

As mentioned above a significant feature of the 1977 reform of Swedish higher education is the *decentralization* of decision-making powers from the national to regional and local levels. In accordance with the decentralisation principle, governance and management structures have undergone considerable change. Representatives of public interests are included on the governing boards of institutions, securing democratic/political influence at local level. Local programme committees, which are responsible for planning the organization and content of undergraduate training programmes, include outside representatives of the appropriate occupational areas. The various institutions now have the freedom and responsibility to take decisions on priorities between different institutional activities. This new freedom, although mostly welcomed by institutions, is not without its problems. It is always easier to have someone else decide for you and to be able to appeal to a superior authority when conflicts cannot be solved at your own level. Furthermore, as a basis for local decisions on budget issues you need a knowledge of matters that you did not have to bother about under the old system. To cope with this new budgetary system and to be able to use the freedom that it offers, it is necessary for all concerned to be informed of existing resources and alternative ways in which resources can be used.

Decentralization also implies that central authorities have confidence in the capacity and readiness of local institutions to control and improve their own performance. To justify this confidence higher education institutions have to be self-evaluating and self-renewing organizations, which may be difficult enough even in periods of economic growth and expansion.

So far various evaluative projects have been mounted at central level, i.e. by NBUC (the National Board of Universities and Colleges), to study the regional and local levels under the new and more decentralized system. The results obtained in these studies have been conveyed to the bodies concerned, sometimes together with various proposals from NBUC concerning appropriate measures. It is interesting to note that this form of soft control, ostensibly logical in view of the philosophy of decentralization, was recently criticized by a State staff body, the National Audit Bureau (RRV), whose task is to evaluate the discharge of their duties by Swedish authorities. The expectation thus expressed that the central level of the higher education system should exert firmer control of higher education than was at all events implied by the intentions underlying the reform, provides an interesting contribution to the discussion concerning the apportionment of roles within the higher education system.

(iii) New developments in curriculum and teaching

An impressive amount of knowledge production is going on all the time in these fields. To quote a topical example, a large number of papers on the enhancement of teaching skills and curriculum development were presented last summer at the annual IUT (Improving University Teaching) Congress in Lausanne, Switzland, which is a species of supermarket in post-secondary pedagogics. The titles of some of these papers reflect the rather timeless aspirations and problems involved: "Charismatic Teaching: Its Nature and Development", "The Ideal Professor", "Ideal Characteristics of University Instructors", "Burn-Out in Higher Education", "Curriculum Development in the Education of Health Professions", "Skill-Based Curriculum Design: Making the 'Whole' Equal the 'Sum of the Parts' ", etc.

No comprehensive evaluation has been made of events in this field in Sweden during the past ten years, and this would perhaps be an appropriate juncture for such an enterprise. The "University Pedagogics Commission" (UPU) presented its report on principles, "Academic Education", in 1970. The Commission was set up in 1965, at a time when the number of students entering universities and other higher education establishments was uninterruptedly rising and measures to streamline and rationalize education were judged essential. The Commission considered the overriding aims of academic education and proposed methods of "breaking down" those aims into goals which were more concrete and more closely related to the practicalities of teaching. The Comission also charted student backgrounds in different respects (a host of background variables were investigated), together with teachers and their functions, and it compiled an inventory of both hardware and software teaching materials. A great deal of interest was taken in questions concerning tests, examination procedures and the award of marks, and also in evaluation at system level.

Finally the Commission recommended the establishment of educational development units, namely a central unit (at what was then called the University Chancellor's Office and is now the NBUC) and units at various universities. These units were to be responsible both for educational development and for INSET measures for teachers in the higher education system. The Commission professed to have adopted "a total view of educational technology", which at that time was more or less another way of saying a farsighted, progressive view of the way in which universities and colleges were to solve problems of teaching and learning. Today, with the wisdom of a decade's hindsight, it seems fair to say that the Commission played a certain part in bringing about the "education-technological euphoria" that was to prevail for a number of years.

An evaluation now of the ten-year period under consideration would provide a useful inventory of comprehensive experimentation regarding curricula, teaching methods, media etc, and it would also illustrate an interesting shift of perspective *away from* faith in an educational method as such *towards* the conviction that padagogics are very much dependent on the subject being taught. This also provides a hint of the limitations, referred to above, concerning the applicability of one situation to another.

The R & D catalogue published every December by the NBUC presents the higher education projects financed by the NBUC and usually contains about 400 or 500 surveys, experiments or projects. The past ten years, therefore, have witnessed an extensive process of innovation in Swedish higher education to say the least of it. Two things should be added here. Firstly, a great deal of experimentation has been supported by other financiers besides the NBUC, and secondly – above all – educational experimentation is being carried on all the time, without special budgetary allocations, by the greatest resource within the higher education system, namely teachers, students and researchers. Thus as a result of the total volume of R & D activities we have today a fund of knowledge which, one hopes, is being properly administered and cared for in the course of everyday work; this is said in the realization that there can be many a slip between an educational experiment and its practical implementation.

It would be futile here to attempt to analyse the content of this plethora of projects. Instead I prefer to append a few short descriptions of R & D projects in higher education which are being supported by the NBUC. These projects constitute examples of current activities, and they will perhaps provide documentation on which to base a discussion by interested delegates at the seminar in January.

All I want to do in addition to this is to touch on some types of innovation in Sweden which have involved heavy R & D investments and have attracted some measure of international attention.

Experimental short-cycle technical-vocational courses (YTH) have now been in progress for some years. The purpose of these activities has been to cater for individual needs and interests regarding technical education of briefer duration than that involved by degree studies in engineering and to meet the demand, in industry and society generally, for technical qualifications of different kinds. The entrance requirements are: (a) basic vocational education at upper secondary school (or the equivalent skills and knowledge); (b) four years' job experience in relevant fields of industrial employment. Instruction has a considerable applied emphasis and is supposed to be geared to "reality". Unnecessary theorization is avoided. Group work is encouraged, and company production studies form an important part of the curriculum. The experimental use of YTH as a supplement to more traditional university education has been systematically evaluated. This brief account is not the right place to go into details, but the activities are firmly established and are here to stay. Unquestionably the attraction of YTH lies in the fact that it is aiming at a new target group (with an unacademic background) and is patently "useful" and vocationally oriented. YTH can benefit both the economy and the residents of the region where it is established.

Sweden being such a large country in geographical terms, distance teaching has been a natural expedient in efforts to reach students living at great distances from university towns. An extensive experimental scheme of distance teaching was conducted under the auspices of the University Chancellor's Office and has been recorded in a large number of reports. Those experimental activities displayed great ingenuity both technical innovations and innovations in the media sector relating to communication between the individual student and teacher at a particular department. There are a couple of evaluation findings which are interesting with regard to principles. Several courses became so popular on account of the special teaching methods employed that there was unexpectedly heavy competition for the available places. Faced with this situation, the university and college departments introduced intake restrictions of the traditional kind (priority being given to student with high credits), with the result that (a) many courses attracted students with extremely high qualifications, (b) the aim of giving priority to students from remote localities was thwarted somewhat. For a large part of the experimental period there were those who maintained that Sweden should open a correspondence university modelled on the Open University, but this idea never caught on properly, and today it is for the individual departments to decide whether or not they wish to offer one or more distance teaching courses.

It goes without saying that in Sweden, as in the western world generally, project or problem-oriented studies have been experimentally conducted at post-secondary level. It should be observed, however, that Sweden has not been so bold as her neighbour Denmark, where a project-oriented university has been established. In Sweden the NBUC has financially supported extensive experiments in such widely varied disciplines and programmes as theology, architecture, Swedish, orthodonty, sociology and public administration, and pre-school teacher training, and it has also undertaken an umbrella project concerning project orientation. As part of the latter project, representatives of experiments in various disciplines have been given the opportunity of meeting and comparing notes. Without attempting here to evaluate these activities, I would venture to say that (a) they have dispelled quite a few misunderstandings about project orientation as a convenient shortcut to knowledge and (b) they serve to bring education into fruitful contact with society. One incentive common to all the types of "innovation" I have mentioned has of course been the desire to adapt higher education to new student categories (relatively more mature students and students with non-academic ambitions) admitted to higher studies as a result of the reform. Although several valuable didactic and methodological innovations have been achieved, it will still be essential in the future for close attention to be paid to the extent to which Swedish higher education, not least in the context of "recurrent education", tailors its instruction to different student categories. It should be possible to find examples of teaching continuing along fairly traditional lines despite all reforms; the renewal of teaching is very liable to become more rhetorical than real.

In the curricular sphere Swedish higher education has been highly centralistic, at least up to the time of the reform. This is perhaps not so surprising when one considers that higher education is financed 100 per cent by the State;

contrast Japan ! But the educational plans adopted at central level have almost invariably resulted from practical and pragmatical work in study groups including representatives of various user and recipient groups as well as of higher education. This practically oriented development work in the higher education sector can probably be attributed in part to the embryonic state of curricular theory in that sector; Swedish curricular theorists have been more concerned with elementary and upper secondary schooling.

In connection with the reform of higher education, responsibility for the compilation of syllabi has devolved from central to local level. Within the framework of the centrally compiled educational programmes, which are couched in general terms and indicate the main outlines of teaching, together with its overall purpose and content, local agencies are now at liberty to define their own teaching content. In a study concluded recently, an investigation was made of the actual steering effect of centrally compiled education programmes on Swedish teacher education. The findings show that (a) it is hard for proposed alterations and changes of direction to penetrate at local level, because accustomed patterns of behaviour are longlived and impervious to renewal, (b) frame factors of a "trivial" nature (facilities, timetable hang-ups etc.) influence teaching to a surprising extent, and (c) the above mentioned local liberty is having difficulty in finding its feet; a certain dependence on central instructions is discernible.

Within various courses of education, continuous development work is in progress regarding both the renewal of content and the sequencing of the various items of teaching. In the latter respect, for example, interesting experiments are underway in medical training in various places in Scandinavia, ranging from regroupings in practical training to radical experiments whereby medical students come into contact with patients practically on the very first day of their training.

(v) Financial aspects

As was mentioned by way of introduction, Swedish higher education, like other sectors of the community, is in a very difficult financial situation. Potential economization measures, both quantitative and qualitative, are easy to imagine in the education sector. The number of students admitted to higher education can be reduced and education can be "rationalized", which means larger teaching groups or less frequent teaching sessions (fewer hours per week).

Appropriate as these measures may undoubtedly be in certain contexts – whatever the state of the economy – incautious expedients of this kind are liable to have negative repercussions on the quality of higher education. One particular problem, of course, is that the effects of a policy measure do not become apparent until long afterwards.

One proposal that has figured in the present discussion on finance is for charges to be imposed for higher education. Up till now the principle of higher education being free of charge has been embraced by all political parties. The appearance of such a proposal now can be taken to indicate that, in the new, austere situation, no financial possibility is to be left untried.

The NBUC is currently engaged on a comprehensive study of educational costs in Swedish higher education in what is known as the Per Capita Project. The purpose of this project is to compile empirical data shedding light on the cost of a number of educational programmes and also, where some of them are concerned, on variations between different higher education units. The project is also aimed at elucidating differences in the cost of different types of education in relation to their organization, nature and focus, and at compiling documentation on which to base an assessment of reasonable levels of expenditure for different types of education. This project, which unfortunately has not yet generated any reports in English, has aroused a great deal of interest and a certain amount of misplaced expectations to the effect that it will produce a "price list" for different types of education (humanities versus disciplines requiring laboratory facilities, for example). But the general purpose of the project is to elucidate the interaction between costs and a number of variables and situationally influenced factors, and to provide methods whereby the various higher education units can improve their own costing estimates.

Concluding remarks.

The present enumeration of measures – "Innovations" – within the Swedish system of higher education has been little more than an unsystematic account of problems and solutions attempted. Similar accounts, or inventories, from the other participating countries will in all likelihood provide the Hiroshima seminar with an impressive pool of educational commodities. It is a stimulating task for the seminar to analyze the innovations in order to find out which are unique, dependent on specific cultural characteristics and therefore of limited transfer value, and which are of a more universal and generally applicable kind. This type of comparative analysis contains great promises as well as obvious risks. I touched on the latter in my introductory note and will not repeat them here.

INNOVATIVE APPROACHES TO COLLEGE TEACHING

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An understanding of innovative teaching in the United States today requires some historical perspective, because innovation is usually a response to changing conditions, and the role of higher education in the United States has undergone some especially rapid changes over the past three decades.

Emerging in the latter half of the 1950s, but making itself felt in the 1960s, was a dramatic shift in social priorities that affected higher education profoundly. Equal educational opportunity became a national priority. Although many colleges remained selective, the task for the nation was no longer to select only the brightest young people in the nation and to educate those elite few for positions of leadership, but rather to educate the masses. New colleges were opened at the rate of more than one each week throughout the period of rapid expansion between 1950 and 1970. Two-thirds of the new colleges were two-year public open-admissions colleges. These colleges were established largely by local governments for the purposes of admitting anyone who wanted to go to college and preparing them for work or for further education. The opening of so many colleges that were low in cost, conveniently located, and open to anyone who wished to attend college resulted in high levels of college entrance. By 1975, approximately 60 percent of all high school graduates were entering college, and in regions with high concentrations of community colleges, 70 to 80 percent of the high school graduates were entering postsecondary education of some sort.

The growth of the 1960s, however, meant not merely more students, but different kinds of students. Prior to World War II, young people attending college came largely from the upper half of the high school graduates in both academic rank and socioeconomic status. The expansion of higher education opened the possibility of college education to children of the lower classes, but it also brought students into the colleges who lacked the basic skills to do college-level work. In 1966, 28 percent of the college-bound young people scored below 400 on the national Scholastic Aptitude Test; by 1980, 42 percent were scoring below 400.

Thus there is a new seriousness in colleges these days about the mission of teaching students. At latest count there were more than one thousand institutions of higher education in the United States that said they had either a program or a set of activities designed to help faculty members improve their teaching (Centra, 1976). Some are sophisticated programs, encompassing the broad range of personal, instructional, and organizational matters associated with the improvement of teaching, whereas others may be fairly simple approaches such as the creation of a media center or the provision of funds for instructional innovation. Attention to the improvement of teaching, however, is a rather recent phenomenon at the college level; most faculty development programs or offices of instructional improvement were started after 1970.

Open-admissions is only one reason for concern about the quality of college teaching. A second reason springs from the new competition among colleges for students. There are now more than 3,200 colleges in the United States; almost one-third of them were established since 1950 to meet the combined pressures for increased access to college plus the large number of eighteen-year-olds in the population. In the 1970s, there were adequate spaces in college for almost anyone who wished to attend, and in the 1980s, most colleges are expected to have difficulty attracting enough students to keep their faculties employed. In this climate of competition, colleges are interested in good teachers, and teachers need to improve their skills if they are to be competitive in a very slow employment market.

Since it is not possible to talk about the full range of experimentation with teaching methods in American higher education, let me address myself today to innovations that seem especially promising for higher education's new task of teaching the masses.

Let us talk first about the fairly simple task of creating some educational approaches that recognize individual differences in the *rate* at which students learn. There is considerable interest in a variety of techniques and methods, known collectively as the individualization of instruction, which permit students to learn at their own pace. Growth of self-paced learning methods was especially rapid in the early 1970s and in open-admissions colleges where the wide range of student skills made group pacing difficult, if not impossible. By 1974, over two-thirds of the community colleges in the United States had some form of self-paced methods available on the campus (Cross, 1976). Today it is the unusual college that does not have one or more good examples of self-paced instruction – whether in learning laboratories, off-campus programs, or standard classrooms.

One type of self-paced learning that is especially useful with low achievers is termed "mastery learning". The concept behind mastery learning is that the student must learn a unit to a high level of achievement regardless of how long it takes. Only when students have mastered one unit may they go on to the next. This is quite the reverse of the traditional concept which insists that all students spend equal amounts of time in the classroom but permits them to learn to varying levels of achievement. We recognize varying levels of achievement by assigning grades– A through F – thus admitting to ourselves and our students that education has not been equally effective for all.

Mastery learning has special significance for the education of students with poor records of past academic performance. Its advantages to these students are both cognitive and affective. It lays the cognitive foundation for future learning by insisting that one unit must be mastered before the student may proceed to subsequent learning. And it carries an affective message through demonstration to low-achieving students that they too are capable of doing good work. To most low achievers, those two critically important experiences are missing from most of traditional education. Low-achieving students are perpetually at a cognitive disadvantage in school because they are rushed along to advanced learning without laying the foundation of the more elementary concepts. To the extent that knowledge is cumulative and sequential, efficiency in learning depends upon mastering each step in turn. Research demonstrates that as children proceed through school, the bright get brighter and the dull get duller as the gap between achievers and non-achievers increases (Coleman et al, 1966). The widening gap is probably due to the efficiency factor in learning. Whereas achievers have the tools and the background to make good use of further education, the future learning of non-achievers is perpetually thwarted by their failure to master fundamentals.

Even worse than the cognitive handicaps wrought by traditional education's notion that everyone should move along with the group, is the affective damage done to young people who are offered no alternative to doing poor work. A school lifetime of doing a job halfway because the student never has the time or the tools to master the task must surely take its toll in feelings of frustration and, by the time they get to college, in feelings of indifference and loss of self confidence.

The advantage of self-paced learning is that in a completely open system, it permits slow learners to succeed, and it permits fast learners to move ahead as rapidly as their abilities and motivation permit. The problem with self-pacing, however, is that it is difficult to administer in a traditional system structured in standard time frames of a school term. Therefore, self-paced learning is implemented in forms that may be more or less adapted to traditional structures. The most common form of self-paced learning exists in learning laboratories. A well-designed learning laboratory provides a wide variety of academic services. They arrange for the diagnosis of learning deficiencies, offer an array of slides, tapes, and programmed print materials for individual students to use; they provide counselors, tutors, and sometimes peer support groups. They are usually perceived as supplementary to regular classroom study, but some learning laboratories offer academic credit for the work accomplished. The prevalence of the learning laboratory is growing, on selective as well as on open-admissions campuses, and it is now the most common way to deal with the growing diversity in academic ability that is characteristic of an open system of postsecondary education.

A second form of self-paced learning that is common in psychology, engineering, physics, and other fields where subject matter mastery is critical, is known as the Personalized System of Instruction (PSI). It is handled in regular classes and is used more frequently in selective than in open-admissions colleges. PSI consists of a set of learning units, each with its own mastery test. Teaching assistants administer the mastery test whenever the learner feels he or she is ready. It is possible, of course, for a student to complete the work of a semester before the end of the term. If that happens, the student simply has more time to spend on other courses, which is another form of self-pacing.

At latest count, there were more than a thousand classes in colleges and universities throughout the United States taught by the PSI method. Its major problem is that some students, especially open-admissions students, lack the self discipline to pace themselves throughout the semester, and completion rates are frequently lower than those in conventional classes. But "completion" is defined differently in PSI than in the traditional classroom. To complete the PSI course is to demonstrate mastery on all the unit tests. That means that all PSI students completing the course receive high grades because they have mastered the material. In contrast, students complete traditional courses when the semester ends. Some students have learned a lot when that time comes, and others have learned very little, but by definition all who remain until the end of the term "complete" the course.

The universally high grades given in PSI courses create another problem for traditional structures. Traditionalists find it difficult to accept the notion that every student in the class can learn a subject to a high level of achievement; they insist that grades must be distributed normally according to the bell-shaped curve. However, one of the impressive findings of the research is that instruction presented under mastery learning conditions enables about four-fifths of the students to reach a level of achievement attained by less than one-fifth under nonmastery conditions (Bloom, 1976).

Another promising avenue of research with implications for teaching innovation is being pursued by psychologists interested in cognitive styles. Since cognitive style is concerned with things people choose to notice and remember and the way they process information, its application in education is especially appropriate. There are at least a dozen separate cognitive style dimensions that have been the subject of systematic research, and perhaps half a dozen more that have been identified but not extensively studied. I shall limit my discussion, however, to the dimension studied by Herman Witkin and his colleagues (1975) at Educational Testing Service. Witkin's dimension of field-dependence vs. field-independence is far and away the most extensively studied cognitive style, with more than two thousand studies reported in the literature. Witkin found in laboratory experiments that some people see things and situations intuitively or in toto without distinguishing elements that make up the whole, whereas others see discrete elements which are then put together to give the total picture. The reason for the name field-dependence-independence is dramatically illustrated by a laboratory experiment in which the subject is seated in a darkened room with a luminous rod in a luminous picture frame which has been set aslant. The task is to set the rod to the true vertical position. With remarkable consistency, some people align the rod to the slanted frame-- swearing that it is vertical when it may slant as much as 30 degrees. Others ignore the frame, apparently using internal cues to set the rod upright. Those who ignore the surrounding field formed by the luminous frame are called field-independent whereas those who depend on the slant of the frame to give them their orientation for positioning the rod are termed field-dependent.

According to research, people who are dependent on the surrounding field to define physical situations are also field-dependent with respect to social situations. Field-dependents tend to be interested and sensitive to what other people are thinking and doing. They tend to be conforming and they like to have people around them. Field-independents, on the other hand, are more internally directed; they are not as sensitive to their surrounding social field, nor are they as concerned about what others may think. Predictably, the research shows that field-dependents are drawn to fields of study that involve people and human relations-- social services, counseling, and teaching; whereas field-independents favor the sciences -- mathematics, biology, and engineering. Witkin and his colleagues found that college freshmen who entered a field of study not compatible with their cognitive style were significantly more likely than other students to change majors during their college careers.

Although cognitive style seems not to be related in significant ways to intelligence, field-dependents are likely to have trouble with the analytical tasks demanded by school subjects such as mathematics and science. I suspect that the school system favors the field-independent learner to the detriment of field-dependent students. Let me give some examples.

Although we know that social situations often present highly effective learning experiences, the traditional classroom is not a very social place. Beginning with their earliest experiences, children are cautioned not to talk to their neighbors, to keep their eyes on their own papers, and to do their own work. Rarely do we permit, let alone encourage, social problem solving. Yet research suggests that field-dependents might learn better under more socially interactive conditions. There is also some evidence that field-dependents learn best when the subject matter is clearly structured, but that they are at a disadvantage in ambiguous and unstructured situations. These findings suggest that while the structure of programmed instruction, for example, should be beneficial to field-dependents, such a cold impersonal approach to learning would not be attractive to them. The implication is that some way should be found to combine high structure with high interpersonal interaction for field-dependent learners.

Most of the application of cognitive styles in colleges takes the form of expanding the number of options available and in making both teachers and students aware that people have different ways of learning and teaching. One community college makes a point of helping teachers develop a style of teaching that is most comfortable for them. Through this process, they gain more diversity of teaching styles for students, but they also encourage better teaching through helping teachers do those things that they do exceptionally well.

Finally I would like to give brief attention to the uses of technology in innovative teaching. The use of television for instructional purposes seems at long-last to be making progress in higher education. A recent survey showed that a majority of colleges are now using television, on campus and off, for instructional purposes. The variety in course offerings is considerable, ranging from a simple video tape of a traditional college lecture course to expensively produced documentaries with "wraparound" study materials prepared by college faculty members. It is estimated that approximately 500 colleges have granted credit to some 600,000 students for five of the best known national telecourses. Telecourses, of course, change the role of college teachers whether they are on the producing or receiving end. The University of Mid-America, which is a consortium of public universities engaged in the production of telecourses, uses teams consisting of four specialists: one for academic content, one for instructional design, one for the appropriate uses of the technology, and one for evaluation. Thus, one of the implications is that those few faculty members who are involved in production are becoming very specialized in the presentation of knowledge. At the same time, regular classroom teachers using telecourses are emphasizing presentation less and are thus free to devote more attention to student learning. Whether, in fact, teachers relieved of the responsibility for presentation do give more attention to pedagogy and student learning has not been studied to my knowledge.

One technology that is primarily concerned about learning (as opposed to teaching) is the computer-managed system devised by Miami-Dade, which is a community college in Florida enrolling some 50,000 students. They call their system RSVP which stands for Response System with Variable Prescriptions. It was originally designed to provide individualized evaluation, diagnosis, and prescription for students studying independently off-campus. It operates in this way: The student uses a combination of course materials–television, tapes, textbooks, and study guides – to learn the material. When he completes a study unit he takes a test and returns a machine-scorable answer sheet to the computer which not only scores the test, but analyzes the pattern of errors to show which concepts are not adequately understood. The computer then generates an individualized letter to the student, analyzing weaknesses and suggesting prescriptive assignments. In the case of basic skills deficiencies, the computer can select from 3,000 possible assignments, the one best suited to a particular student. Miami-Dade College is now using RSVP to individualize attention to its large student body, with widespread acceptance by both faculty and students. Last fall, for example, a computerized letter was sent at the midterm to each of Miami-Dade's 10,000 entering students. The letter informed each student how well he or she was doing in each course and made suggestions to those not doing well about where they could obtain additional help. Miami-Dade expects such analysis to reduce their attrition rate, and they also expect the system to be used with considerable effectiveness in the distance-learning situations created by the potential of telecourses.

Time does not permit even a cursory review of all the teaching innovations that prevail in the United States right now. I have concentrated largely on those teaching innovations that seem to offer promise for dealing with diversity in open-admissions colleges. I opened these remarks with the observation that most teaching innovation is launched in response to perceived problems and there is not much doubt in my mind that the greatest challenge to teaching and learning exists in the open-admissions practices of America's community colleges. As long as eqaul opportunity for disadvantaged groups remains a high national priority, there will be support for those methods which have some hope of bridging the gap between the well educated and the poorly educated.

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THE DEVELOPMENT OF NON-UNIVERSITY HIGHER EDUCATION IN THE U.K.

THE CNAA AND CURRICULUM DEVELOPMENT

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Until 1950 higher education in Britain was virtually confined to the Universities; the only activities outside that system were the relatively small teacher training colleges and a few part-time advanced students in local authority colleges. The teacher training colleges were attached to neighbouring Universities, which provided the academic guarantee of standards, but no degrees were awarded to students in the colleges. Students in the local authority colleges studied in the main for external degrees of the University of London – a system with a long history, but characterised by inflexibility and by estrangement between the students and teachers on the one hand, and the examiners on the other.

When in the 1950's and early 1960's the demand for higher education began to rise rapidly, due to an increase in the proportion of the age group qualifying and wishing to go on into higher education, the Robbins Committee (1964) advocated a policy – adhered to until 1980 – that all capable of benefiting from higher education should have the opportunity to enter it, and to facilitate this they recommended a rapid expansion in the scale of the University system by the creation of more Universities. The Colleges of Advanced Technology, which had developed in the non-University sector, became Universities but subsequent growth in the University system came about by the expansion of existing centres rather than by creating new institutions. A major factor in the expansion of higher education since the mid 1960's has been the growth of the so-called "public sector" colleges, including the 30 Polytechnics; at the present time this public sector is in terms of total student numbers about equal in size to the University system, though fewer than half of these students are on full-time courses.

The characteristics of "public sector" higher education, which distinguish it from the University sector are:

1. Institutions do not have the power to award degrees; instead a central body, the Council for National Academic Awards (CNAA), holds a Royal Charter for the award of degrees outside the Universities. The CNAA validates proposals put to it by the institutions – it does not concern itself with the admission, teaching and assessment of students, only with the making of the final awards. The institutions are the source of innovation.
2. Institutions do not have the formal constitutional independence of Universities; they are financed by and answerable to the local authorities and subject to an overall but distant control by the Department of Education and Science. In practice each institution has a fair degree of self-determination in its academic programme.
3. Institutions have inherited a strong tradition of meeting local needs; they take a higher proportion of locally based students than do the Universities, and aim particularly to provide a broad range of courses, for degrees *and* other qualifications (e.g. of professional bodies) and a wide variety of study patterns – full-time, part-time, intermittent and "sandwich" courses, as well as a great number of short courses. They were established to be more "socially responsive" than the Universities.

In practice neither side of this so-called binary system of higher education is monolithic. There is as much diversity on either side of the line as across it, and the above generalisations must be taken as approximate only.

The scale and characteristics of student population on both sides of the binary line are summarized in Tables 1 and 2.

The implications of the formalisation of the binary system for curriculum development

The declared objectives of the Polytechnics and other public sector colleges include the satisfaction of the demands of society, especially in the localities, and particularly as expressed by industry and commerce.

In practice it has often been extremely difficult to determine what society's demands are, and even industry and commerce are vague about their own long-term needs, though they are often quite specific about short-term problems – e.g. a shortage of trained personnel in microprocessors; even the larger employers expect to be able to call on the higher education system to supplement their own internal training schemes in such areas as these.

The relationship between public sector higher education and the world of work is therefore less clearly defined than the theory of the binary system would suggest. In fact it is a kind of uneasy free market relationship, with the colleges initiating courses and producing graduates in the hope and expectation that they have correctly diagnosed the needs of employers. A high proportion of the staff of these colleges have had industrial or commercial experience, so that they are in a good position to estimate what is required, and part-time students, who spend four days a week on the job, are keen critics of the relevance of the courses they follow on the fifth day. But there is no attempt at, or plan for, detailed manpower planning over the main areas of higher education other than medicine and teaching. Nevertheless the proportion of graduates who go directly into employment is higher from the Polytecnics than from the Universities.

In spite of the absence of close guidance the rate of development has been far greater than anticipated – the Polytechnics have flourished and become large and self-confident institutions, in many cases offering courses in an extremely wide range of courses – wider than most British Universities, for example. The only areas not covered in the public sector are medicine, dentistry and veterinary science. The student population of the Polytechnics can be classified as follows: in addition to engineering, science and technology, virtually all of an applied or applicable nature (33% of students), there are major activities in business and social studies, including management and social work (33%), and in the areas of humanities, education, fine art, music and the performing arts (33%). In all these areas CNAA degrees have been developed – in many cases the first degrees of their kind in Britain. The concept of what is "degree-worthy" has been significantly widened and deepened.

The Charter of the CNAA includes a Statute 8 (5) which reads as follows:

> Each Committee shall, subject to the provisions of the Rules, exercise and be responsible to the Council for the following functions:
>
> (a) Ensuring that the Degree, Diplomas, Certificates and other academic awards and distinctions granted and conferred by the Council in the subjects assigned to the Committee are comparable in standard to awards granted and conferred by Universities.
>
> (b) Approval of courses of study in the subjects assigned to the Committee

after having had regard to –

(i) the standard of work in the subject of a course at the establishment at which it is being pursued and the facilities available threat for that course;

(ii) the curriculum and syllabus of a course;

(iii) the qualifications of the teachers conducting a course;

(iv) any arrangements for practical training and experience in connexion with a course;

(v) the standards required for admission to a course, and

(vi) the arrangements for conducting examinations in the subjects assigned to the Committee and for the appointment of external examiners to act with the teaching staff of the establishment.

Virtually all the curriculum developments which have occurred in degree studies in public sector colleges during the past 15 years have been validated by the CNAA, using this Statute as its legal basis. Approximately 1100 separate first (Bachelor) degree courses have been approved in over 130 institutions; in every case the proposal by the institution to offer a course has had to be approved by the government (DES) before the details of the course could be considered by the CNAA; this Council was therefore always in the position of awaiting proposals from the institutions and it has had limited scope for initiative. The impulse for the development of new courses comes from the staff of the institutions themselves, and it is one of the successes of the CNAA that within its framework there has been such prolific innovation; this has stemmed from the placing of the opportunities for course design and development before the teachers in the institutions and from their ready acceptance of the responsibility for the proposals and for their implementation – including the admission, teaching and examining of students, all of which, under the CNAA system, are the responsibility of the institution once the scheme as a whole is approved.

The CNAA does not prescribe, except for some very general guidelines. The boards and committees of the CNAA receive the proposals from the institutions (usually including detailed statements about the course objectives, course structure, syllabuses, facilities, and the qualifications and experience of staff). They then have to come to a view about the proposals in the light of Statute 8 (5). In the early days a majority of the members of boards were from Universities, but this proportion has decreased as the proportion of experienced staff in the institutions has increased, and University members are now in a distinct minority on most boards. The CNAA therefore embodies peer evaluation on a large scale.

The validation process has not always run smoothly; a high proportion of proposals have been referred back or turned down outright on first presentation. This has usually been because of lack of experience of the staff making the proposal, though there have been cases when the decision seemed to involve points of philosophical principle not far removed from academic politics.

The process of validation

A brief description of what is involved from the point of view of the institution is now given, not because there is anything exceptional or remarkable about it, but because it is a process which has become universal over a large sector of higher education in the U.K. Since the CNAA plays no direct part in the selection, education or assessment of the students who are to receive its awards, a CNAA Board considering a proposal has to satisfy itself about all aspects of a course before giving approval, knowing that once that approval has been given – usually for a period of three or five years, but in some cases of well-established courses, longer – the institution is entirely responsible for the course. The initial examination of a new course proposal is therefore very detailed and thorough, usually involving a visit by Board members to the institution and an intensive discussion with the members of staff who developed the proposal and would be teaching the course.

Within an institution a course proposal originates with a group of staff who propound it to their colleagues and secure support for the proposal (a) as an appropriate academic initiative by the institution and (b) as an appropriate recipient of resources, if validated. The institution as a whole, through its Academic Board, must support the proposal.

The proposal takes the form of a detailed document or set of documents (in spite of frequent exhortations to brevity the documentation is almost invariably extensive). The *objective* of the course is first stated, often in terms of the kind of graduate which it aims to produce and the skills he or she should have acquired, sometimes, in the case of so-called vocational courses, this is expressed in terms of the kind of jobs the graduates would be expected to do. The *academic theme(s)* of the course are then stated – the major and minor subject areas, with any relationships which are intended between them. Any *vocational or industrial* aspects of the scheme are described, including any periods to be spent in gaining training or relevant experience outside the institution (as on sandwich courses) – and the contribution, if any, which these periods make to the assessment of the student's performance. The *staffing* of the course is described in detail with full curriculum vitas of all those who would teach on the course, together with a statement of their teaching loads, research interests, etc. A full account of the *physical resources* available to support the course – library, computer, and laboratory services, for example, is also expected. The *entry qualifications* required of students proposing to seek admission to the course must be stipulated and the reasons given.

The modes and methods of *assessment* of students must be stated in precise detail and with reasoned statements for their adoption. The Council's regulations set limits to the extent to which, for example, any one mode of assessment should dominate the whole process, and require in the case of Honours degrees, for example, that due weight be given in assessment to those components of the later parts of the course which are defined as being of Honours standard. The arrangements for involving *external examiners* in the assessment process must be given, and the CNAA must approve each individual proposal for the appointment of an external examiner to a course; many of the external examiners are University teachers, though the proportion of non-University teachers has increased over the years. The detailed *structure* of the curriculum of the course has to be provided, together with detailed *syllabuses* supported where appropriate with *reading lists.* The methods of tuition – e.g. relative time allocation to lectures, seminars, tutorials, practical sessions – are required, and the organization of course work.

Boards look for *coherence* within courses and are concerned with the overall balance of the components. They try to discern what effect the experience of following the course will have on the students; in the case of a course which is seeking reapproval after a due period of approved operation, a detailed *evaluation* of the course is expected, including statistics of student performance, comments by students, reports by external examiners, and where appropriate, the views of employers.

Certain aspects of the general organization and running of the institution are relevant to the consideration of a course proposal. The CNAA has a system of regular *institutional reviews,* to satisfy itself that each of the colleges working in association with the Council provides an appropriate environment for students studying for its awards.

The general and social facilities available to students are relevant, as are, for example, the policy of the institution as regards access to library and computer facilities, research opportunities for staff, staff development matters, and internal determination of resource priorities. The overall level of support for the institution by its financing authority is also looked at.

In recent years CNAA has been encouraging institutions to take more responsibility for the *internal validation* of their courses, by intensive processes of peer evaluation within the institution. This has led to a somewhat more relaxed atmosphere in the negotiations between CNAA Boards and the more experienced institutions. Boards still expect to have a fairly detailed discussion with the proposers, but they can now usually assume that the process of internal validation has involved meticulous examination of the proposal by experienced members of staff across the academic spectrum within the institution, and also, possibly, by external experts specially drawn into the process. The use of external experts or consultants is especially relevant where a new area of study is involved.

As an indication of the scope and scale of CNAA validation, Tables 3 and 4 list the titles of awards made at degree and postgraduate levels in 1979.

A critique of the CNAA

The importance of the existence of the CNAA in the period of development of the public sector colleges in the UK cannot be over-emphasized. Without it there could not have been the degree of curriculum development and innovation which has in fact occurred. This is because the Universities in the UK, which are well used to coping with internal innovation, do not have the experience or the inclination to accept responsibility for validating novel proposals in other institutions; the only relationship they are familiar with is one of tutelage of one institution (the University) over the other (the non-University institution)–and such a relationship stifles initiative.

A further very important effect has been the standards set by the CNAA in its assessment of the environment and facilities in the institutions – this has led to a great improvement in the standard of provision of libraries, computers and all kinds of specialist facilities. The whole ambience and resource level of public sector institutions has over the years improved markedly, mainly as a result of CNAA intervention.

There are of course drawbacks to the scheme of national validation which has been described, but its achievements are considerable. On the credit side we should put: –

(a) The establishment of a new system of degree qualifications whose standards and acceptability in comparison with those of the UK University system are unquestioned.

(b) The acceptance of different study patterns as having equal status in respect of the award of the degree qualification. Whatever mode of attendance the student follows (full-time, sandwich, or part-time), provided the course has been approved for the particular mode of study, the award is of equal status and no distinction is made.

(c) The sandwich pattern of study, in which one or more periods of full-time industrial or professional experience occur during what is otherwise a full-time academic programme has been established on a large scale. 33% of students on CNAA full-time degree courses are on sandwich courses (these constitute over 70% of all such students in the UK) which are in such academic areas as engineering, applied sciences, mathematics, computer science and business studies.

(d) Greatly enhanced professional competence of academic staff, following their acceptance of responsibility for their own proposals and their successful defence of them, followed by the establishment and maintenance of academic standards; this contrasts strongly with the lack of professional development which occurred under an external degree system.

(e) An increase in the awareness of the importance of the validation process and all its components – evaluation, definition of objectives, course structure and curriculum, student experience, assessment procedures, etc. This has had its effect in the University sector too.

(f) A powerful mechanism for change in higher education – the very wide remit of the CNAA has meant that the spectrum of degree studies has widened greatly, and whole new avenues of opportunity have been opened up.

(g) Greatly enhanced communication between institutions and their staff, through the CNAA "network" of broad and committee members (totalling well over 1000); this crosses the binary line and leads to greater mutual respect and understanding. In parallel with it the extensive network of external examiners, exchanged between institutions, not only helps to ensure the maintenance of standards but also serves to spread information about innovations.

(h) Through the deliberate policy of the CNAA in requiring institutions to spell out academic aims and course objectives, there is a greatly enhanced awareness of the importance of clarity in these matters. The Council has always itself had some rather generally worded guidelines and in addition each proposal must include a statement on objectives in which the proposers describe, for example, what kind of graduate it is intended to produce, what he should be able to do; this usually includes a statement about the "breadth" of the course, the extent to which the main subject studies are supported by other subjects, and the contribution of general or cultural studies; the importance of ensuring numeracy and literacy, for example, and the extent to which a student is expected to teach himself.

(i) A strong encouragement to the development of academic democracy and a trend away from decision-making hierarchies in the institutions. Only where there is the possibility of free and open discussion can proposals emerge which command wide support. The CNAA boards are especially concerned to probe behind facades to discover how involved all the teachers are.

On the debit side we must count:

(i) A cumbersome bureaucracy; since all the operations of the CNAA are based on written submissions, prepared in great detail, and the Council is involved with a large number of institutions and courses, and operates through a large number of committees and boards, it has become administratively complex; there is now considerable debate as to whether "mature" institutions should not have more independence from the CNAA, not only to escape the bureaucracy, but as recognition of a new stage of development.

(ii) The emphasis on the courses being based in the institutions, and the lack of powers of the CNAA to require or enforce particular patterns of course, has meant that little progress has been made towards a national credit-transfer system. Modular courses have increased in number but are still in a minority and are not on a standard pattern. It could therefore be said that, in this respect at least, we are not offering the student any real alternative to the conventional degree.

(iii) An overwhelming concentration on the *degree* as the terminal qualification; in the U.K. this is rigidly defined in terms of minimum entry level, minimum duration and intensity of study – the three year Honours degree course (or four years in the case of "sandwich" courses) is the norm. This may have been appropriate for the 5% of the age group entering higher education thirty years ago, but it is probably not appropriate for all the 13% now entering. The CNAA has validated the two-year Diploma of Higher Education since 1974, but this has made little impact, probably because it was from the outset regarded as "two-thirds of a degree", and hardly any students take it as a terminal qualification. A great opportunity has been lost.

Conclusion

The experience of 16 years of operation of the CNAA has been that, given the opportunity to propose, develop and operate degree courses in areas of their own choosing, academic staff of non-University institutions have shown an unexpectedly high success rate. The system has grown numerically not only in students but in diverse courses, many of them in areas where degrees had not previously been awarded in the U.K. A significant increase in opportunity has been achieved while maintaining a high regard for standards.

Table 1 **Higher Education in England and Wales**

Student numbers (1979/80) in thousands

	Universities	Public sector	
		Polytechnics	Colleges
Full-time		77	82
Sandwich		36	9
Total F.T. & SW	270	113	91
Part-time day)	30	41	55
evening)		17	24
	300	171	170

Table 2. **Origins of Full-time and Sandwich Degree Students**

	Universities	Polytechnics
Total numbers	270,000	90,000
% entering direct from school	77	40
from f.e. college	14	40
after a break	9	20
under 19 years	65	27
aged 19	21	27
aged 20 or 21	6	23
aged 22, 23, 24	3.5	12
aged 25 or over	4.5	11

Table 3

Titles of Awards of the Council's Degrees of BA, BEd, BSc and DipHE, in the period January 1979 to December 1979

Accountancy
Aeronautical Engineering
Architecture
Arts and Humanities
Biological Sciences
Biomolecular and Biophysical Science
Building
Building Services Engineering
Building Surveying
Building Technology and Management
Business Studies
Catering, Dietetics and Food Sciences
Chemical Engineering
Chemistry
Civil and Structural Engineering
Combined Studies (Science)
Communication Studies
Communication Engineering
Control Engineering
Dance
Design
Drama and Theatre
Economics
Education
Electrical and Electronic Engineering
Electro-Mechanical Engineering
Engineering
Engineering Geology
Engineering with Marketing
English
Environmental Studies
Estate Management

Fine Art
Geography
Geological Studies
Graphic Design
Health and Paramedical Studies
History
History of Art and Design
Industrial and Production Engineering
Information Science
Instrumentation, Control and Systems Engineering
Land Surveying Sciences
Law
Librarianship
Marketing
Materials Studies
Mathematics, Statistics and Computing
Mechanical Engineering
Mining Engineering
Modern Languages
Modular Arts
Modular Science
Music
Nautical Studies and Fishery Science
Nursing
Ophthalmic Optics
Performance Arts
Pharmacy
Philosophy
Photographic Studies
Physics
Planning
Politics and Government
Polymer Science and Technology
Printing and Packaging Technology
Psychology
Public and Social Administration
Quantity Surveying
Social Sciences
Sports Science
Textiles/Fashion
Textile Technology
Theological and Religious Studies
Three Dimensional Design
BA Honours independent Study following the award of DipHE
BSc Honours Independent Study following the award of DipHE

Table 4

Titles of Awards of the Council's Degrees of MA and MSc, Postgraduate Diploma, Postgraduate Certificate in Education, Diploma in Management Studies and Diploma in Professional Studies, in the period January 1979 to December 1979

Master of Arts

Architecture and Planning
Business Law
Ceramics
Education
Fine Art
Graphic Design
History
Industrial Design (Engineering)
Interior Design
Librarianship
Management Studies
Sociology
Textiles/Fashion
Three Dimensional Design

Master of Science

Advanced Experimental Physics
Applied Solid State Physics
Business and Management
Chemical Analysis
Chemical Education
Chemical, Instrumentation and Systems Engineering
Chemical Spectroscopy
Chemistry
Civil Engineering
Computer Science
Control Engineering
Corrosion Science and Engineering
Electrical and Electronic Engineering
Environmental Acoustics
Food Analysis and Composition
Fuel Technology
Guided Weapons Systems
Information Systems
Instrumental Chemical Analysis
Life Sciences, Health and Medical Services
Materials Studies
Mathematics, Statistics and Operational Research
Mechanical/Production Engineering
Microwave and Solid State Physics
Military Vehicle Technology
Molecular Science of Materials
Nautical Studies
Pharmacology
Physical Basis of Electronics
Physical Instrumentation
Psychology
Quaternary Studies
Radiation Science and Nuclear Technology
Sociology
Solid State Science

Transportation Planning and Management
Urban Planning Studies

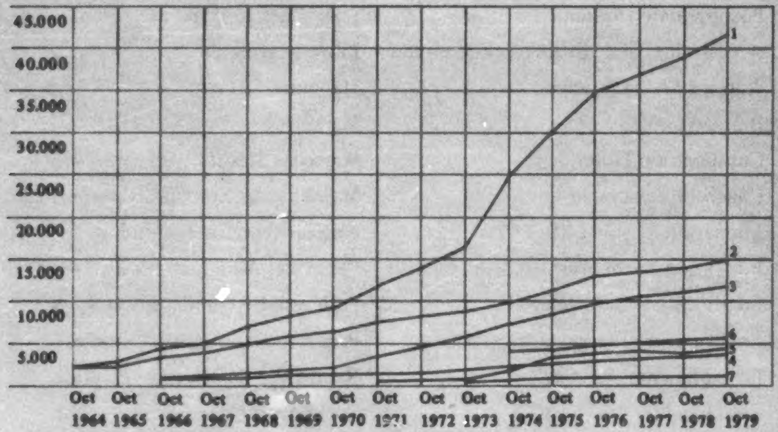
Postgraduate Diploma

Accounting and Business Economics
Applied Social Studies
Biometry
Conservation Policy
Control Engineering
Education
Education Technology
English Studies
Environmental Engineering
Environmental Studies
Geotechnics
Health Education
Health Facility Planning
Heat Exchanger Technology
History of Art and Design
Hydrographic Surveying
Instrumental Chemical Analysis
Knitwear Technology
Languages/Linguistics
Librarianship
Mandarin Chinese
Marketing
Materials Studies
Mathematics/Statistics/Computing
Nuclear Reactor Technology
Personnel Administration
Policy and Administration Studies
Property Development Studies
Recreation and Leisure Practice
Social Economics
Transportation Planning
Urban and Regional Planning

Table 5.

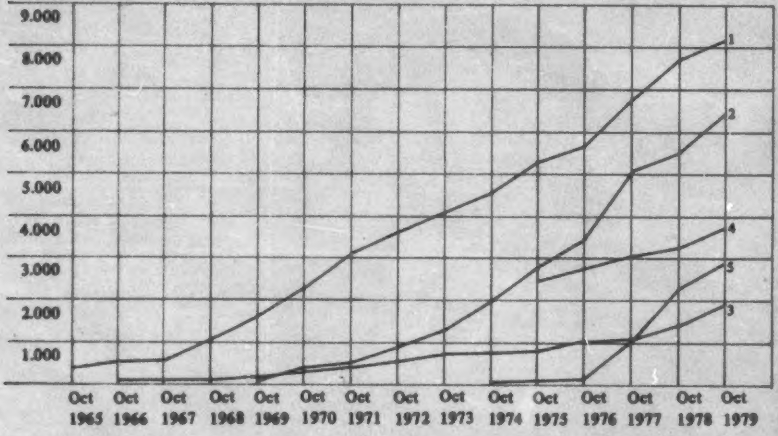
CNAA First Degree Enrolments and Graduations

First Year Enrolments



1. All Subjects
2. Science and Technology
3. Arts and Social Studies
4. Business and Management Studies
5. Art and Design
6. Education
7. Interdisciplinary

First Degrees Awarded by Subject Area



1. Science and Technology
2. Arts and Social Studies
3. Business and Management Studies
4. Art and Design
5. Education

SUPPLEMENT TO SIR NORMAN LINDOP'S CONTRIBUTION "COUNCIL FOR NATIONAL ACADEMIC AWARDS AND CURRICULUM DEVELOPMENT"

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London, U.K.

I A comparison of the public and university sectors of higher education in the United Kingdom

As indicated in pages 1 and 2 of the main paper above, the significant differences between the public and university sectors of higher education in the United Kingdom have their origins in their respective methods of funding, the respective arrangements for originating and validating academic and research work, and the declared terms of reference of polytechnics to provide a wide spectrum of study patterns and course objectives with a particular commitment to vocational and continuing education.

i) Although universities and institutions of higher education in the public sector are all largely founded by the state, the former receive their income direct (through an advisory university grants committee) whilst the latter obtain their resources through a complex system which involves the Local Education Authority as well as the National Government's Department of Education and Science. In fact for the polytechnics the Local Authorities contribute only a very small proportion of the actual finances due to a national pooling arrangement but are concerned 100% in their administration.

ii) In the matter of course approval the processes for colleges in the public sector are equally involved compared with the strict autonomy enjoyed by universities. Application for approval to mount a course needs to be made by the college through the Local Education Authority to the Department of Education and Science via a Regional Advisory Committee which in theory advises the DES on the place of the course in the regional provision of higher education before it (the DES) gives approval for the college to commit the necessary resources. Once this approval has been given the college then needs to seek academic validation of the programme of studies from the appropriate validating agency. For degree programmes at all levels in the public system the validating authority is the Council for National Academic Awards but it is well to re-emphasis that the CNAA concerns itself with the validation for each proposal intrinsically and within the context of the college as a fit place for degree studies but not with the admission, teaching or assessment of the students.

iii) Some indications of the way in which the public sector higher education in the United Kingdom has developed over the past decade or so in the numbers of students enrolled, modes of study, disciplines offered etc. may be made in the form of a comparison with the university sector of higher education in the United Kingdom. Figures 1 and 2 show the development of full time (FT), sandwich (SW), and part time (PT) student numbers in the past 15 years. It is noticable that in the FT and SW numbers the total is increasing over the years which is largely in accordance with demographic factors. The sudden reduction in numbers of teacher training students (TT) is noteworthy. For the PT statistics, the university population has remained fairly uniform in size, but a massive and continuing increase is apparent in the numbers of students attending this mode of study in the public sector. The numbers shown for 1980 in figure 3 reinforce this point in terms of enrolments. The public sector of Advanced Further Education (AFE) is equivalent in size to that of the universities, but has a greater preponderance of part time students. 50% of students within the public sector enrol in the polytechnics and the majority of these are on FT and SW courses, many leading to degree qualifications.

Tables 1 and 2 of the main paper and figures 3, 4 and 5 compares polytechnics and universities, their courses, students and subjects studied, in more detail. The broad conclusion that may be drawn confirms that polytechnics have responded well to the policies that set them up 14 years ago, and now offer a wide choice of opportunity. As a consequence the student body in the polytechnics is older, more closely involved with industry, commerce or society, and drawn from a closer geographic sector than the equivalent student body in the universities.

II The Council for National Academic Awards

The Council for National Academic Awards was established by Royal Charter in 1964 as the main degree awarding body in the United Kingdom to serve the non-university sector of higher education. The object of the Council is the advancement of education, learning and knowledge and the arts by means of the grant of academic awards and distinctions. The Council has, inter alia, the powers:

A) to grant and confer degrees diplomas, certificates and other academic awards on persons who have pursued courses of study approved by the Council at educational establishments other than universities, and B) to grant and confer degrees on persons who have carried out research under the supervision of an educational or research establishment other than a university.

The CNAA is governed by its Council which consists of a Chairman, 25 members appointed by the Secretary of State for Education and Science, ex official members, 3 co-optive members, and an executive member who is Chief Officer of the Council. The 25 appointed members are drawn from universities, establishments of education other than universities, from industry and commerce, and from the local education authorities. Figure 6 shows the Council's committee structure. Reporting to the Council are 10 major committees, 9 whose concern is mainly academic, the other being responsible for advising Council on its establishment and finance matters. Related to the committees is a range of boards and specialized panels which together are responsible for the main function of the CNAA, namely, the assessment of courses and research degree applications. The membership of each Board or panel comprises polytechnic and university teachers, members from industry commerce or appropriate organizations and independent practitioners having the appropriate expertise in the field. The processes of course and research approval are outlined in the main paper above.

III The influence of the CNAA on innovations in curriculum development

These have sprung from the need by institutions and colleges to examine their motives in the provision of higher education, to have regard to the educational philosophy behind their work and particularly the need to spell out the aims and objectives of the particular courses in preparation for the professional scrutiny inevitable in the validation process. Indeed the published Principles & Regulations for the Award of Council's first degrees etc. ". . . . hopes that advances in curriculum design and teaching methods will lead to regular reviews of course objectives, and that in general the syllabus and curriculum development will keep pace with advances in the subjects involved." Following these and other requirements the fundamental components of all schemes of study including for example entry levels and qualifications, syllabus and subject balance, tuition methods, assessment methods have been examined in great detail, and a number of innovations introduced from time to time. Concomitant with the burgeoning of curriculum awareness by the staff of institutions has been an equal interest and scrutiny in the academic organization of colleges and in their arrangements for the teaching year.

Whilst an exposition on the main innovations in all these areas is too lengthy for the purposes of this supplement, the depth of the processes involved may by gauged by looking at a single example of the way that one particular aspect of the curriculum, that of the balance and aims of a particular programme of study, was accomplished in the scheme documentation submitted to CNAA.

The CNAA Principles set out *inter alia* that the aims of programmes of studies include the development of the students intellectual and imaginative skills and powers, the introduction of a greater understanding and competence, the stimulation of an enquiring and analytical approach; they must encourage the skills of clear communication and logical argument and inculcate an appreciation of the nature of attitudes, and modes of thought of other disciplines. In response to these Principles the curriculum of a particular programme of studies leading to the award of BSc Hons in Mechanical Engineering contained the following:

1. The aims of the programmes of study.
    1.1 The philosophy of the programmes available on advice to the individual student stems from the aim to produce professional Mechanical or Aeronautical Engineers.
2. The *particular educational aims* of the scheme are threefold:
    2.1 To contribute to the provision of graduate Mechanical Engineers and Aeronautical Engineers. It is anticipated that their degrees will enable holders to gain exemption from the examinations of the relevant professional institutions.

2.2 To offer at first degree level a range of studies in Mechanical Engineering or Aeronautical Engineering through a sandwich structure in which practical experience and academic studies are combined.

2.3 To provide a stimulating and satisfying educational experience.

3. All study programmes attempt to satisfy the *general educational aims* adopted by the Academic Board of the Hatfield Polytechnic. These aims are to develop in the student the following qualities:

(a) The ability to think logically, both within and outside his main field of study;

(b) A critical and sceptical approach in enquiry and a readiness to test hypotheses;

(c) the willingness to have regard to points of view other than his own;

(d) an awareness of the existence and nature of value judgements;

(e) the ability, confidence and desire to learn by himself and to continue learning;

(f) the ability to make full and effective use of the English language, both spoken and written;

(g) a grasp of mathematical modes of expression;

(h) the ability to exercise creative imagination;

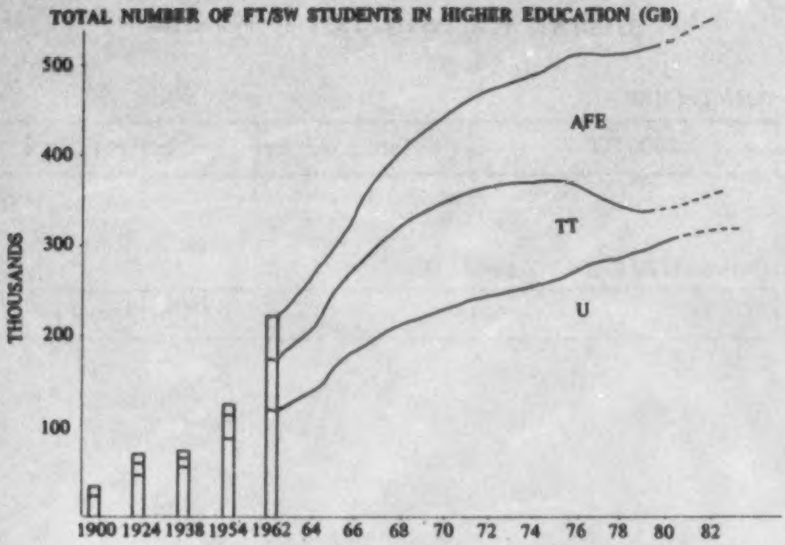
(i) an understanding of the significance of science, technology and economic and social factors in modern society.

The manner in which these aims will be implemented in the current scheme is outlined below.

Aim	Activity	Evaluation
(a)	All studies in Mathematics, Computer Science, Statistics & Technological Studies.	All forms of assessment, e.g. examination, written course work, continuous assessment.
(b)	Laboratory work, projects, tutorials and seminars, industrial training.	Written and oral reports. Industrial Training log books.
(c)	Some of the Complementary Studies Courses. Integrative Studies. Seminars. Joint	Not directly assessable but reflected in other assessments. Industrial Training log books.

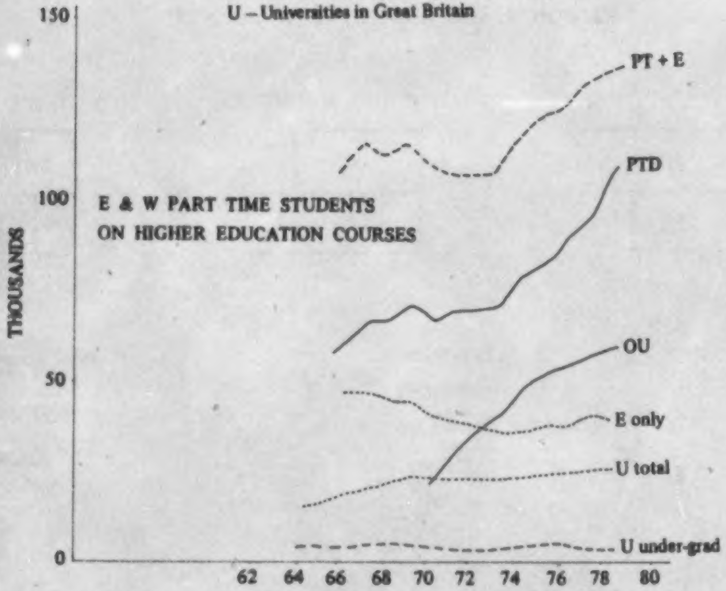
	project work. Industrial Training.	
(d)	Integrative Studies. Seminars. Certain specified courses e.g. Design Major Project.	Continuous assessment. Project assessment, seminars.
(e)	Guided study. Private study. Library. Project work. Integrative Study.	All forms of assessment.
(f)	All studies, particularly the Communications component of the programme. Report writing.	All oral and written assessment.
(g)	Mathematics. Computation. Statistics. All technological subjects.	All assessment dealing with quantitative matters.
(h)	Drawing and Design. Project. Industrial Training.	Continuous assessment. Project assessment. Industrial Training log books.
(i)	Design and other specified courses e.g. Manufacturing Technology. Industrial Training. Integrative Study, Industrial Studies, Complementary Studies."	Continuous assessment and examinations. Industrial Training log books."

This example, which is by no means exceptional, indicates the interpretation by the academic staff of one department of a polytechnic of one aspect of the curriculum of a particular scheme of study. Similar responses to other items of curriculum development are equally painstaking and thorough. The effect has been the development of an academic staff who are pedagogically aware and possess an interest in and experience of the processes of higher education that go beyond the limits of the skill, discipline or subject they profess to teach and study.


TOTAL NUMBER OF FT/SW STUDENTS IN HIGHER EDUCATION (GB)

KEY: AFE – Advanced further education in England and Wales
TT – Teacher training in England and Wales
U – Universities in Great Britain

Fig. 1



KEY:
PT – Part time
PTD – Part time day attendance
E – Evening attendance
OU – Open University
U – University
E & W – England & Wales

Fig. 2

STUDENTS PER INSTITUTION by mode of study

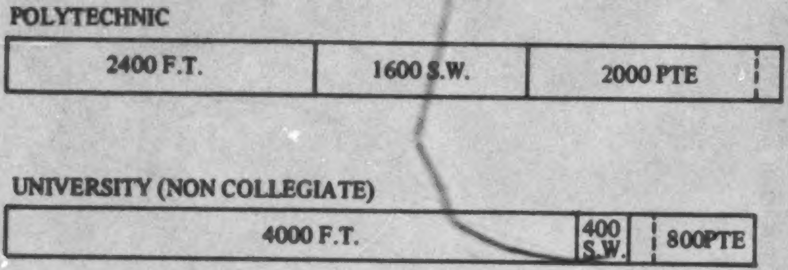
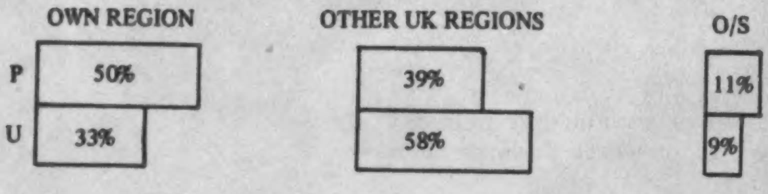


Fig. 3

REGIONAL ORIGINS of F.T. STUDENTS



KEY:
P – Polytechnic
U – University
O/S– Domiciled overseas

Fig. 4

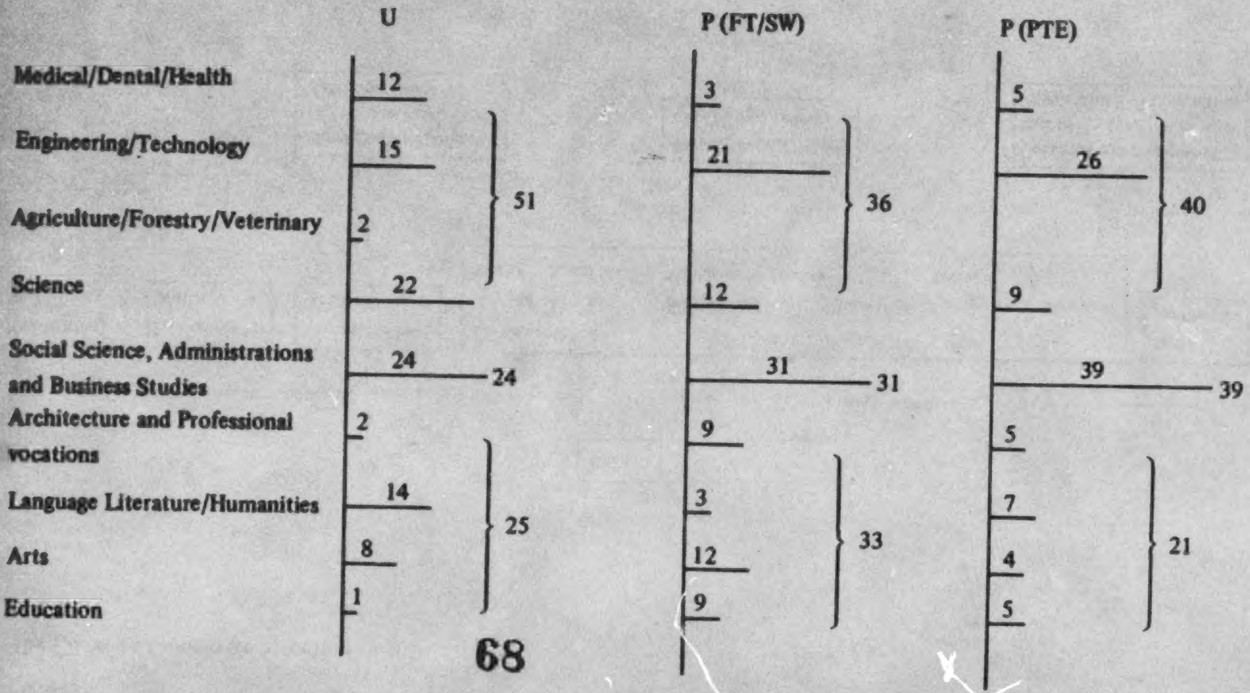
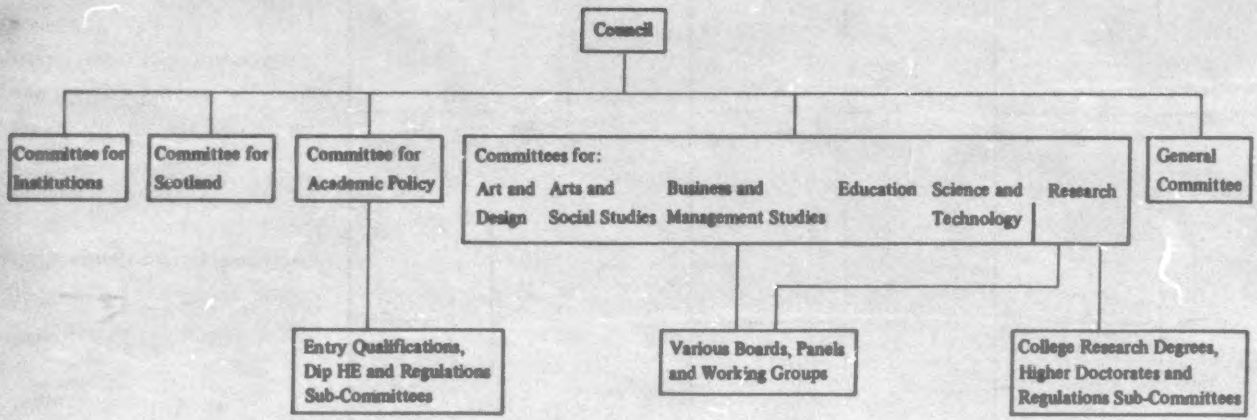

U
P (FT/SW)
P (PTE)
Medical/Dental/Health
Engineering/Technology
Agriculture/Forestry/Veterinary
Science
Social Science, Administrations and Business Studies
Architecture and Professional vocations
Language Literature/Humanities
Arts
Education
12
15
2
22
51
24
24
2
14
8
1
25
3
21
12
36
31
31
9
3
12
9
33
5
26
9
40
39
39
5
7
4
5
21

Fig. 5

Figure 6

The Council's Committee Structure


Council
Committee for Institutions
Committee for Scotland
Committee for Academic Policy
Committees for:
Art and Design
Arts and Social Studies
Business and Management Studies
Education
Science and Technology
Research
General Committee
Entry Qualifications, Dip HE and Regulations Sub-Committees
Various Boards, Panels and Working Groups
College Research Degrees, Higher Doctorates and Regulations Sub-Committees

CURRICULUM REFORM AS AN INSTRUMENT FOR THE PROMOTION OF INNOVATIONS, EXPERIENCES AND INTENTIONS IN AUSTRIA

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Introductory note

At first sight, lecturing on problems of the Austrian universities in Japan seems to be rather idle, since there appear to be more differences between the two university systems than features they have in common: in Japan there exist – as far as I know – about 1,000 universities and similar institutions, compared to a meagre number of 18 in Austria. In Japan there exist public and private universities, in Austria they are all federal institutions. The courses of study in Japan and Austria differ strikingly: whereas Japan postpones study specialisation until after general study courses at the outset Austrian freshmen usually have to decide on their particular study programme at their first enrollment. Access to Austrian universities is granted to holders of an upper secondary school leaving certificate without the barrier of particular entrance examinations (numerus clausus), the latter system is widely practised in Japan.

Looked at more closely, higher education in Japan and Austria have in common the characteristic problems relating to the university policies of many industrialised countries: rapid expansion of the university system (buildings, staff, students, graduates) on the one hand, and growing claims to allow for societal and extraneous needs in the planning of curricula on the other hand. Attempts to make provisions for new qualifications demanded by society, attending quantitative expansion have, proved insufficient. Consequently, in both countries steps are taken to try out new approaches which guarantee for a better adjustment of curricula to the demands of the society. The University of Hiroshima has done a considerable amount of research work on this problems.

It is therefore a particular pleasure for me to join a seminar at this university.

1. The limits of quantitative measures and legal provisions in university policy

From the midsixties onwards, particularly during the last decade, university education in Austria has been expanded at a pace never experienced before. Higher education and research have been a major item in the national budget for nearly a decade. Within ten years the numbers of students have doubled, public expenditure for universities has nominally been trebled, its real value has been doubled. The number of staff employed in universities has increased accordingly, and today nearly twice as much space in university buildings is provided than in 1970.

This expansion of university education has been thought necessary by economic as well as social reasons: it has been argued that investment in education would produce economic growth and improve the equality of opportunities. What are the results of this period of expansion? The assessment as to what extent the promised equality of opportunities has really taken place and in what way it has affected the social structure can be summed up briefly: those social groups with traditionally strong affinities to education have made much more use of the new educational provisions than those for whom these provisions have been made. Today, the reservoir of talents in the upper classes is nearly exhausted; admittedly, the number of students from lower social classes who lack the close contact to the educational system has increased, but, compared with that of higher social class still figures rather small.

I will focus here on the arguments relating to economic policy. When in the midsixties the national report on Austrian educational policy was prepared by the OECD, the Ministry of Higher Education defined its policy in that way: "The educational system has become an important previous condition to the economic development, a prerequisite of the same importance as financial resources and means of production" (1).

It is common opinion today that the "sputnik-shock" has initiated a redefinition of educational policy in western industrialized countries. There have been fears that without substantial investments into human capital and into the production of know-how the western countries might risk to fall behind economically as

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1. Bundesministerium für Unterricht, Bildungsplanung in Österreich, Wien 1965, S.10

well as politically.

This pattern of thought brought about a favourable climate for educational policy measures. Their chief objective was to enlarge the quantity and to improve the quality of highly qualified manpower output. International competitiveness has been one of the most urgent concerns of Austria; increasing the investments in education has been considered the essential previous condition. So government policy concentrated on secondary and tertiary education. To begin with, the building of secondary education establishments has been extended. In the field of university education, the full impact of this policy can be expected to show up during the eighties. Between 1980 and 1990 the number of graduates in employment will rise from 120,000 as it is now, to more than 170,000. Though public opinions differ regarding higher education policy and the expansion of university education is criticized, no political pressure group would really risk to insist on curtailing university expansion by means of access restrictions (numerus clausus). It is a fact that in all highly industrialized countries the ratio of graduates employed to the total of people employed exceeds that of Austria. According to recent projections, the structure of qualifications in Austria in 1990 will be similar to that of the German Federal Republic in 1970 – a time-lag of 20 years (2).

The expansion of university education is still linked to expectations of innovations, and it is true that qualitative aspects are now more emphasized after a period of quantitative expansion. In 1975 already the report of the OECD on Austrian university policy drew attention to the need for curriculum reform(3).

In 1966 a bill regulating university studies passed Parliament with the approval of all political parties. This bill represented the final stage of a discussion initiated by the ministry, which had lasted for several years. It formed the basis for curricula reforms. In Austria the legal principles regulating the university system dates back to 1848. Therefore it reflects different political conceptions. In some aspects a considerable autonomy is granted to academic bodies as well as individual professors. To some extent this system still prevails,

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2. Clement W., Ahammer, P.F., Kaluza, A., Bildungsexpansion und Arbeitsmarkt, Wien 1980
3. OECD, Educational Policy and Planning, Higher Education and Research in Austria, Paris 1975
OECD, Reviews of National Policies for Education, "Austria, Higher Education and Research", Paris 1976, "Austria-School Policy", Paris 1979

but there will eventually be provided detailed regulations for all study courses. The advantage of the new regulation (of 1966) is to be in terms with the rule of law; its disadvantages are rather inflexible curricula which additionally cost a great deal of money.

Another major objective of the reform of the last 15 years was to reduce the impact of scientific disciplines on study programmes and to bring about an orientation towards working life, or, in terms of the present act: "to prepare students for professional life". Although extraneous bodies have participated in the preparation of the law, the regulations of the university system reflect largely the interests of university teachers and "discipline chauvinism". New disciplines, less established by tradition range marginally in study programmes. The attempts so far to brush up the contents of study programmes have been of rather mediocre success. Curriculum reform has become a permanent struggle against the entrenched principie of a mere adding up of classes which cause an overstrain and prolongation of study courses. Recently, therefore, demands have been made for more general study courses and for courses paying more attention to professional life.

2. University education as a means of innovation

The application of scientific methods does not necessarily imply innovation. The term "innovation" implies linking up the process of the generation and transmission of scientific knowledge to its application. Innovation may be defined as the process of introducing new products and new procedures into an existing economic system. Accordingly, advanced know-how, inventions, qualified manpower range as previous condition for innovation. It is not just by chance that today, after all those efforts of reinforcing scientific and technological development by means of increasing financial support and enlarging the number of scientists, technicians and other highly qualified manpower, the discussion of innovation focuses on the application of scientific research and on education. Therefore the output of the universities in terms of new qualifications is considered an indispensable contribution to innovation.

So, beyond all questioning, universities can be expected to initiate innovations, and their contribution towards this target will have to be assessed. A short examination shows that in the past strong links between universities and technological/social progress, such as they are postulated today, never existed. Considerable external pressure was needed to get the universities involved in the process of scientific and technological development. Innovative effects of university education have been brought about by the implementation of a policy stressing the priority of practice relevance in university teaching and research.

Admittedly, already before the 19th century the universities and assumed educational tasks, and they still fulfill them, but these tasks did not or just partly, include the development of innovative professional attitudes. This is of significance. According to a widespread opinion graduates are supposed to be innovative, although there are no reasons backing such an opinion, neither with regard to job performance nor with regard to self- esteem. The professional life of many graduates is characterized by more or less demanding routines. One of the traditional tasks of universities is the education of civil servants (law, economics, social sciences) as well as the training for the traditional professions (medicine, education, religion, etc.). Each of these activities requires in certain cases the ability to find innovative solutions for problems. Nevertheless it is wrong to suppose that it is, or should be, the essential function of such professions to set up innovative attitudes. Whether or not the professional activities of graduates become innovative depends on the characteristics of the particular job. As a result university education may stimulate innovative attitudes only if corresponding conditions for innovative job performance do exist.

Whether the approach of graduates to work e.g. in industry, may be called innovative does not solely depend on their university education, but is powerfully determined by the readiness and ability of the management to implement innovations. But these aspects are no part of our discussion. It is just neceassary to note that university education must also take into account the conditions of its practical implementation into practice, if it is to prove innovative. Per se and on their own universities do not create innovations. As far as innovation does depend on research it may lead to disregard the complex feed-back relations between technological, economic and social developments, in favour of scientific research, which is seen as the only determining factor of innovation. Scientists and academics naturally tend to overestimate the weight of science (and scientists or intellectuals altogether) and its influence on the pace of technological and economic developments. Although such an image of science stimulates the output of scientists, and may be responsible for, to some extent, the level of scientific performance, it would be disastrous to base the practical measures designed to promote innovation as well as the implementation of study programmes upon such an ideology.

The narrow-minded conception of innovation as a pure production of know-how and mere knowledge disregards the problem of application and diffusion of technological inventions. The problems resulting from the practical application of innovations do not receive the attention they deserve, seeing that any recent scientific success is expected automatically to win through.

Universities tend to think little of the practical conditions of the application of university education, and tend to ignore their duty to examine their relevance for the realities of the working life. That is a major temptation for them because the autonomy of research granted to the universities seems to involve the transfer of the concept of basic research to university education. Society concedes to universities to do research projects which do not have an immediate objective in view, but which may prove useful in the future. But university education must not be structured on these lines, university education must not be an end in itself. Not just any kind of scientific knowledge may prove relevant and useful for purposes of training for professional qualifications. The pre-eminence of "science" in university education endangers university teaching and learning to become an end in itself, an attitude fostered rather by internal organizational aims than by the challenge to provide for professional training.

Thus considering "scientific" and "innovative" to be equivalent may turn out to be the main reason for limiting the efficiency of university teaching as regards (innovation). Education is a very important link and sphere of communication between university and practical life. University teaching as an end in itself, without any regard to employment requirements would redound to the detriment of the university both by being divorced from its social environment and by gradually losing its power of self-renewal.

This indicates a weak point in the organization of universities: they are not at all innovative with regard to their own structure and in matters concerning themselves they are conservative. This is possibly a result of their function to reproduce knowledge. In fact, one of the main tasks of universities is the preservation and passing on of science as a social organization. This fact, and the major assignment of a university to create knowledge results in tensions. Many examples show that universities favour well established scientific theories and methods and are reluctant to new developments, which is bound to prove disastrous effects on university teaching.

Furthermore, problems arise from the function of the universities to provide for the social reproduction of scientific and technical knowledge. Attempts to widen the access to university education had to be carried through against the opposition and – in some instances – even against downright rejection by the universities; examples could be adduced to the point.

Due to a number of factors universities are increasingly at risk of isolation and of loosing their relevance for other sections of the society. It is with dismay that one notes the strongly introspective policies of the university system in matters crucial to its own existence (extension of facilities, curriculum reform) and their inability to catch up with the expectations of performance set up by society. Austrian experience in the field of curriculum reform leads to the conclusion that the internal interests as well as the existing structures of the universities do represent a major hindrance to any profound reform of study programmes. Such questionable developments of isolation may lead to study organization and curricula becoming determined rather by internal interests and the structures of universities than by the social and professional demand for qualified manpower. The essential tasks, education and research, are often an end in themselves. This divorce of university education from society entails its failure to cater for practical needs, which, in its turn, precludes innovative teaching or activities. Hence graduates tend to lack the ability to handle practical problems rather than specialized knowledge. Recently published research stresses this lack of "key qualifications".

Thus, terms like "anticipation" and "participation", used in a rather general sense by the Club of Rome, indicate characteristically new ways of learning, geared towards innovation.

3. Establishing new patterns of communication between university and community

There is an urgent need to check tendencies towards a further increase of university isolation so as to safeguard its efficacy with regard to innovation by means of new organizational patterns. The lacking capacity for self-renewal and the reluctance to change has frequently led to interference by state authorities. Considering the social expectations universities are facing today, one has to look for adequate solutions.

In fact, the planning of study courses by public administration alone cannot cope with the problem. Besides, it would be odious, if public planning were to determine the practical relevance of every specific curriculum. On the other hand, to expect universities to solve the problem of setting up courses of study and curricula with a stronger practical bias would overtax their innovative capacity. Only joint efforts of extraneous groups and universities can enable the latter to fulfill their tasks adequately. In Austria – as in other industrialized countries – there is a demand not just for more, but for better qualified graduates. The expansion of necessary ressources, equipments as well as of the number of students and graduates, has been a major step forward. The reform of curricula has also aimed at a better qualification of graduates for working life, although this objective has not been prominent. Likewise, the legal framework for structuring the curricula has been geared towards job orientation and practical relevance. No wonder that the study regulations prove ineffective because there is no clear guidance for implementation.

There is a rising dissatisfaction with the declining abilities of graduates. This sense of unease is expected to intensify throughout the next decade, because considerably more graduates will enter the labour market where they will obtain not only the traditional professional positions of academics, but will increasingly have to take up jobs which require highly specialized qualifications, though not ranking high in hierarchy. More importance will be attached to qualifications obtained at universities than to university education as such, conferring social status. Extensive evaluations of the practical relevance of study programmes will have to be carried out. Hitherto, state institutions (ministry, parliament, administration) have secured communications between working life and universities by translating the requirements of the former into study regulations. This system of communication (employers, employees – interest groups – public administration – universities) is time-wasting and hindering. Reform demands easily transferable into legal terms appear to have a better chance for implementation. Inevitably, this favours an increase of legal regulations, which further restrain flexibility. Besides, public administration cannot cope with the aspects of quantity or quality of this development.

Therefore, I think it is a necessary primary condition for innovation to develop a new understanding of the practical relevance of university education, which is conceived as a means of establishing an organized communication with working life. Such a new system goes beyond a mere focussing on single study programmes, it likes universities with other areas of society. Thus curriculum reform has to start with a reorganization embracing the entire university system, if it is to achieve an improved communication between universities and community. Such interchanges should be encouraged and fostered without determining a priori the contents of communication. This would favour a limitation of governmental interference and would prevent study reform being a permanent concern of state administration. The objective is – in general terms – to establish patterns of communication between universities and working life in order to prevent the isolation of university education.

The following measures appear to deserve discussion:

- Apart from university teachers and students, representatives of extra-mural interests should participate in discussions concerning the contents of courses
- More people with work experience should gain access to university study.
- The profession and position of the professors should be reviewed; outside experts should engage in university teaching in a more prominent way.
- Universities should much more engage in post graduate education and training; special attention should be payed to practical experience.
- University education should include periods of practical experience as well as their critical assessment. Some studies may be organized as sandwich courses.

Some beginnings – although modest ones – do already exist in Austria. It is now incumbent on the politicians to enable the universities by means of a system of communication to implement their educational tasks by the development of qualifications implying a sense of practicability that entails innovations.

CURRICULUM DEVELOPMENT AT TSUKUBA

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Japan

I

The Tsukuba University Master-plan constitutes an apparent paradox in connection with curriculum innovations at higher education levels. It is probably Japan's most ambitious reform-program jointly sponsored by the Government and the academic world, from the view-points of any education-specialist familiar with the educational system in Japan. However, it may constitute a paradox from a Western Observer's view point. It may partly be seen as a radical re-exposure of Japan's traditional school-structure and curriculum frameworks to the models of European, and particularly American university-level education which have recently placed considerable emphasis on academic integration of all the disciplines and on student-centered teachings, that is, on providing a liberal arts or general education mainly designed to produce society's elite and future leaders. At the same time, the Tsukuba plan must be classified mainly as an ambitious "take-off program" for an experimental model of higher-educational institutions in contemporary mass-society, where the majority of citizens demand to participate in life-long learning activities, and where educational institutions should respond to the multi-complexity of public and student needs for continuing study in connection with their aims, both personal and professional, in life. In other words, there seems to be a contradiction: curriculum-programs are expected to respond both to academic integration of all the disciplines in teaching and to the diversity of learners' needs. And thus, it may strike some Western observers that the Tsukuba plans are an apparent "return-to-traditional" ideal movement or a resurgence of classical Western models (particularly, Anglo-Saxon student-centered teaching models).

No matter how complex and contradictory it looks superficially, the basic rationale of the curriculum reform at Tsukuba is very straight forward. According to statements by Dr. Fukuda, our president, made at the International Conference on Higher Education held in the summer of 1974 in order to commemorate the opening of the Tsukuba campus, the first aim of the innovations is to make a flexible curriculum-structure which can respond to all of the following: the fluid international situation, the rapid increase in quantity of academic information available, the wide diversity of learners' needs and the various demands of society, the quick expansion of interdisciplinary studies reflecting on social tension between nations, and so forth. In other words, a university curriculum in contemporary society where social change has occurred at an ever accelerating rate, must be reorganized with a great deal of flexibility to cope with those recent trends in society.

The Master-plan Committee, however, came to realize that there was one great barrier to improving on the situation that already existed and introducing a curriculum structure more flexible and adjustable to a changing environment. This barrier was the "chair" system and the "Gakubu-Faculty" structure, which came to be regarded as irrelevant, even harmful, even though it has been traditionally adopted throughout the nation by both national and private universities. The "chair" system and the "Gakubu-Faculty" structure regidly separate academic disciplines, and could not be applied to the case of Tsukuba's experimental system. Cross-faculty-type curricula and inter-disciplinary teaching programs have often been criticized by scholars in established disciplines, who have rarely encouraged their students to participate in classes and research activities in other faculties than their own. Scholars such as these have disliked to transplant into the Japanese system more flexible, student-centered curriculum programs in terms of the major-minor optional (or open) system now well-known and well-established among Anglo-Saxon educational programs. The discipline-centered scholars and teachers in established schools tend to stick to the chair system, for it secures life-long offices and posts for them, and, therefore, would not meet any curriculum-changes with any favour. Thus, it took a long time before any experimental and flexible type of curricula could be officially approved even by the Ministry of Education's subcommittee on curriculum standard and accreditation, although we previously had a few exceptional instances of progressive reform such as those of the International Christian University, which is firmly founded on American college traditions, and of the College of General Education, the University of Tokyo, which accepted into its curriculum-programs a wide range of interdisciplinary subjects. They were, in a sense, the forerunners and heralds of the Tsukuba reform.

Some anxiety concerning various obstacles to experimental reforms in curriculum induced the Master-plan Committee to appeal to both the Diet and the Ministry of Education to introduce some kind of jurisdictions by which the Tsukuba's curriculum structure could be regarded as an exception, in terms of an experiment, to the Government's Curriculum Standards. These standards were at the time rooted deep in the traditional Gakubu-Faculty system and rigidly separated along the border-lines of each discipline. As you all may know, each of the traditional faculties, such as the faculty of literature, faculty of Economics, faculty of pure science, and so on, has always emphasized what it calls 'the density of disciplinary content in its education' and has often ruled out the possibility of free choice by students, which after all might result in students selecting course combinations outside the officially set curriculum-menu approved by the faculty. Under the traditional system, the number of mandatory subjects and academic credits indispensable for graduation are semi-permanently fixed, and thus, this rather narrow-minded disciplinary education tends to be an education of specialists in a certain field, or elite education in each discipline, even at undergraduate levels. What is more, the graduate level education in this kind of tightly closed academic circle tends to become dull repetition of disciplinary specialist-education at undergraduate level, perhaps spiced up with additional attractive-looking but really worthless curricular matter of slightly higher level. Today's speaker, of course, realizes that this is an exagerated criticism of the curriculum structures popular in the Gakubu-Faculty system in general, and that this system does have its own strong points which should not be ignored. For example, it seems to provide, especially from teleological viewpoints, the right ways to give students deep insights into a certain speciality, though at the expense of the character of undergraduate-level education as general education. In other words, the system does not permit integrated interdisciplinary approaches to human problems – something which has long been one of the aims of education in the West. Also, it is more easier for any teacher to conduct his classes in a place where groups of students and scholars in disciplines akin to his own are gathered. Further, the intimacy between students and teachers in this family-like group inside the same discipline is often and traditionally considered appropriate to the Japanese social environment. The sense of sharing the same discipline creates a kind of family-loyality to their Gakubu, and reflects an essential principle of Japanese society.

On the other hand, the inflexibility of this Faculty system has largely obstructed the innovations and reconstructions of the content of university education usually promoted in response to social changes. Student unrest in the latter 1960s, a main cause of which was this patrimonial curricular system, was naturally followed by stronger pressure for curriculum revision. As a result, interdisciplinary departments and comprehensive courses particularly for cross cultural education, which students themselves put much emphasis on around in the late 1960s, were successively adopted by private colleges. Private colleges are more autonomous, and this atmosphere of autonomy at times enables them to be more innovative. Everybody easily come to the conclusion that, in contemporary society, no discipline can stand aloof from other related fields. Let me take up an example. Even a lecture in domestic politics must take into account the effects of international relation, economics, trade, and technology in addition to some cultural pressure from neighbour-nations. This means that any teacher of any discipline can not ignore that there is a growing movement and demand within every discipline to restructure its system of knowledge on the basis of an intercurriculum perspective. However, the reaction of each Gakubu in established schools was very slow.

Many specialists in comparative education have often claimed that this particular Japanese type of Faculty system was imported into Japan from German universities, but recently, historians in Association for Historical Studies – of Higher Education in Japan rejected this opinion outright – common though it is. They have pointed out the fact that Japan never adopted into its system the major character of the German system, that is, the decisive distinction between Faculty of Arts and Sciences (or Faculty of Philosophy) which usually bestows common academic degrees like Ph.D. and M.A., and professional faculties such as Divinity, Medical, and Law faculties which award students professional licenses rather than degrees. Traditional faculties in Japan are closely differentiated on the basis of major academic disciplines, such as pure science, literature, economics, law, agriculture, education, home-economics., technology, marine-science, political science, and so on, which are according to the Fulbright Commission's academic advisers, almost identical to large-sized departments in the American system. In Japan, particularly in post-war society after the 1950s when the quantity of academic knowledge made rapid increases, the number of university-degrees related to successively increasing disciplinary fields seemed to rise uncontrollably as more new Gakubu-Faculties became independent of their traditional and established categories. The integration of all disciplinary knowledge and the unity and harmony in university administration of research and education, major ideals which have been loyally maintained since the beginning of history of higher education, seemed to be sadly lax in Japanese schools. For the purpose of regaining this integrity of knowledge in education especially at undergraduate level, many research-minded Gakubu-Faculty scholars introduced into their system primary courses of general education in the first two years. This system proposes that the students, irrespective of their future speciality, should be exposed early to a common body of knowledge – at the least, to introductory courses in each of the divisions of the humanities, the social sciences, and the natural sciences. The emphasis here is put on a preparation for life rather than a preparation for a speciality. However, those discipline-minded scholars have, so far, given too little attention to those introductory courses of general instruction, and thus, often, junior faculty members are assigned to those much-hated duties. This possible solution has now resulted in other troubles such as intellectual schizophrenia between the faculty members in charge of disciplinary education and speciality and those of general education courses, in each of the Gakubu-Faculties in conventional schools.

On the Master-plan Committee, we again realized that there can be a general and a disciplinary way of treating any subject, and that in a university it becomes particularly important that research-and discipline-oriented professors have as broad a view of their subject as possible, and also, that the students themselves should take the initiative of selecting the subject on the basis of their own purposes for study and for their later careers. This choice would automatically differentiate each of those subject into certain categories of general or professional education in terms of 'major and minor' subjects or 'introductory and disciplinary' courses.

Generally speaking, in those traditional faculties of arts and sciences widely observed among major universities in Anglo-Saxon nations, the integration of both general and disciplinary education in harmony is rather easy to achieve. Naturally, as the quantity of knowledge and the number of faculty members increase, this integrated faculty became closely divided and segmented into quite a number of departments and research institutes. Unlike the Gakubu-Faculties in Japan, however, these faculties of arts and sciences in the Western style can carry out their administrative integration especially in relation to teachers' research and welfare under the dean's guidance with great support from the department chairmen and, though indirectly, can maintain the unity concerning educational planning by providing teachers to any undergraduate and graduate program (or to colleges and graduate schools), in accordance with requests from program directors and deans responsible for curricula and education.

Unconscious of the effect on education, Western university planners and educators have long differenciated between those functions of teaching (including curriculum-planning) and of research (including administration of teachers' private welfare) into the two systems; namely the faculty and departments, and colleges and graduate schools in terms of curriculum-programs at both undergraduate and graduate levels. Thus, the barriers between discipline-lines fixed at the bottom of research-minded teachers' consciousness, can not exercise their influence in full power over educational programs independent of the faculty itself and mutual negotiations concerning curricula and teaching methods between deans and directors in charge of students' welfare and education. Those program-directors and school-college deans may pay all their attention to students' needs and rather easily build up even interdisciplinary curriculum-programs across the administrative lines of colleges and schools. This is because, in colleges and schools which are actually students' learning systems, professors are semi-juridically requested to submit themselves to educational programs, where students' and society's demands meet the professors' requirements.

Here, professional schools and colleges like divinity schools, law schools, and medical schools keep their own exceptional status, because their educational programs are narrowly limited to the specialist spheres where particular technical skills can be taught only under the personal guidance of specialist experts. Even in the United States, their faculties keep tight control over their own educational programs.

One more principle should be considered in connection with Tsukuba's reform, namely, graduate programs should be completely independent of undergraduate program in terms of the distinctive differentiation between general education and speciality-education (or professional education). The most important factor in the pressure for university growth as the result of industrial development and the democratization of educational system in post-war society is the rapidly increasing percentage of the age-group that is demanding access to higher education and also, the diversity of students' demands of the curriculum. The figure is now well on its way to 40 per-cent in comparison with less than 2 per-cent in the 1930s. How can we maintain the present quality of university education and research, while at the same time, meeting the pressure of the masses who regard higher education as just one step in their life-long education or as general education necessary for citizenship in the age of internationalization? We hopefully expect that the pressure will begin to lose some of its steam in the near future. However, the research-minded prestigious universities will hardly feel this way, as long as they maintain the present Gakubu-Faculty system which can not, obviously, respond either to the demand for wider access and curriculum-diversity or to the demand for maintaining the quality of research and education. This is because a strictly limited number of students is a necessary condition for their disciplinary elite education at undergraduate levels, as also the intimate relation between students and teachers, and because curriculum-diversity is in fact contradictory to their primary educational purposes. Neither the experimental university at Tsukuba nor any prestigious university is large enough to meet the demand for both wider-access and curriculum-diversity. On the one hand, therefore, there is the rapid emergence of alternatives to the university, mainly, in those systems of junior colleges and open universities, but, on the other, the Tsukuba plan is programmed, at least, to respond to the demands for curriculum-diversity and more flexible curriculum at college levels and to the demands for maintaining the quality of speciality-education and research at graduate levels, by separating graduate education and professional education at higher levels from undergraduate programs in their functions. Tsukuba's undergraduate programs should be designed to respond to the wider variety in its students' capacities and competency in contemporary society. University educational programs should be divided, in a sense, into C.P. Snow's two world; namely, independent graduate works and general education.

Those guiding principles which have been mentioned for the Tsukuba-plan are now crystallized into the present system of Tsukuba University, which will be described soon.

II

Under the established system of other Japanese universities, both the faculty and students in the same disciplinary field are attached to the same specific Gakubu-Faculty (or specific large scale department) where research and education are theoretically treated as unified functions. In practice, however, the emphasis has all to often shifted to research activities and teacher-dominated curriculum within the inflexible walls of each Gakubu-Faculty or department. The resulting isolation of each Gakubu-Faculty tended to prevent effective cooperation among various academic fields. Such cooperation is an essential factor for undertaking flexible and interdisciplinary education and research, particularly of hitherto untapped areas, in response to newly emerging social needs. On the part of student education, the growing industrial society is expecting universities to turn out a variety of individuals competent in diverse skills and knowledge, with a broad tolerance and scope in approaching any issue at question, – namely, rather generalist type graduates in comparison with (theoretically) highly specialized students or students severely restricted in their disciplinary training which tend to be the typical products of the educational arrangements in the conventional Gakubu. Tsukuba aims at overcoming those deficiencies, though it may sound too idealistic, by a system which treats research (the realms of teachers' main occupations) and education (the realms of students' learning) as structurally separated but functionally interdependent endeavors. In this system, all the professors and full-time researchers are grouped and attached to various research-centered "Institute" (Gakkei) almost equivalent to departments in America. They are grouped in accordance with their specialities and disciplines. This teacher-researcher unit is named "Institute", in which all the members are expected to concentrate their attention on their researches and private projects. (The main function of the institute-type unit is fully illustrated in "Beyond Academic Departments" by S. Ikenberry and R. Friedman, 1979, Jossey-Bass). Education or teaching, however, does not take place in Institutes but in Colleges and Graduate Schools in terms of undergraduate programs and professional programs. Those colleges with their own particular character as curriculum units at undergraduate levels, are re-grouped into superordinate organizational units called Clusters (the *Numbered Clusters* – first, second, and third). Each Cluster is constructed to cover all the three classical fields like humanity, social sciences, and natural sciences, and also to cover major areas of disciplines, and almost deserves the title of university by itself. Therefore, students in each college can benefit from broad intercollege course offering in the corresponding cluster and from the possibility of selecting major-minor subjects in accordance with their learning purposes, at least, within the limit of loose-controlled cluster programs.

Also, in contrast to conventional universities, the courses of instruction within each Cluster of Colleges are not dichotomized into general education (in the first two years) and professional, disciplinary education at college levels. We provide a four-year consecutive undergraduate program in which general education and disciplinary courses are originally integrated in terms of each of major-minor subject programs constructed on the basis of mutual consultation between students and teachers. Students are expected to select one of the majors, discipline-centered or interdisciplinary, again, in accordance with their ability, interest, or career orientation. Thus, some students could concentrate on the subjects of their major and others could comprehensively study a wide range of subjects, covering not only their major but other related majors.

Please remember that we have three professional schools at college levels, in those fields of physical education, art and medicine, where students are requested to study under a four-year or a six-year consecutive curriculum organized on the basis of technical skill, special discipline and essential training required by the dean of each school.

The First Cluster of Colleges is composed of the Colleges of Humanities, Social Sciences and Natural Sciences and it looks rather like a small university of liberal arts. In contrast to the other numbered clusters, this Cluster puts much more emphasis on the instruction of basic disciplines. For this reason it might be called the Cluster of Fundamental Sciences. The subjects available for various majors and courses in those colleges of this Cluster are more or less similar to those provided by each of the Gakubu-Faculties in conventional universities, but, as a marked departure from those established university practice, our students are given substantial freedom in their selection of subjects and can easily go across the walls of discipline-lines to do so.

The Second Cluster, which consists of the four Colleges of Comparative Culture, Human Sciences, Agriculture, and Biological Sciences, aims at providing wide ranging interdisciplinary curricula and courses in applied sciences, which center around the study of man, human environment (both social and natural) in those fields of comparative culture, education (human development), social welfare, biological resources, and agriculture. When you look for any model similar to one of the second cluster Colleges, say, the College of Comparative Culture, you will soon recognize those Anglo-Saxon models like the School of American Studies at Sussex, England, or the College of Applied Sciences, San Diego, the United States. In fact, the College of Comparative Culture is a model of Tsukuba's innovations, and no paralleled educational-system can be found in established universities in Japan. Here in this College, curriculum programs can be broken down into two main categories: that is, the first is the majors of 'comparative thought' and 'comparative culture', in which students take their focus on methodological issues concerning the study of human sciences and the materials and resources of learning are drawn basically from a broad array of various disciplines, including history, sociology, anthropology, philosophy, socioeconomics, geography, psychology and so forth, and further from the contemporary products of their multidisciplinary and comparative researches; the second is those majors of 'Area Studies' and 'Literature and Literary Civilizations in main cultures' programs, in which students concentrate their attention on 'objects' of their studies and researches as we do the same in those fields of area studies such as American Studies, Japanese Studies and South-Fast-Asia Studies, and of literature-studies in relation to their social history and cultural environments.

The third Cluster is called the Cluster of Engineering and Management, which consists of three colleges in the fields of Basic technology, Information Sciences, and Socio-Economic Planning. The education in this Cluster is designed to harness its students with not only basic but professional knowledge and skills required for their future participation in the technological development of the society, but it also draws its resource materials of instruction from all those basic divisions of human, social, and natural sciences. Therefore, this Cluster is classified as one of the numbered Clusters rather than as a professional school at college level, although its educational purposes are much related to those of professional, technical education.

In the end, we must add that students in each college of any cluster are not confined in curriculum programs of their own college and cluster in their selection of subjects and advisers. Our computers which memorize all the subjects and courses which our students are registered on, can easily track down the direction of students' learning and can supply any information, necessary for instruction to their teachers and advisers. Some outstanding students at college levels may be permitted to register in graduate courses related to their majors. In those exceptional cases, the computer might often indicate to those students which subjects or courses would be proper for their levels of competence. At graduate level, Tsukuba has introduced another innovation.

Now, we must reexamine the problem of the conventional graduate-level education of the Gakubu-Faculty system. In order to give their final, negative evaluation on the conventional system where graduate studies seemed to be nothing more than a spired up version of undergraduate studies, the Ministry and the Japan Association of University Standard and Accreditation together brought into effect 'the Curriculum Standards at Graduate Levels' in 1974, first in the history of Japanese higher education. The first aim of this new Standard was to promote various reforms such as the division of professional schools and graduate schools of basic or pure sciences and the flexibility of curriculum content. Secondly, this new Standard has functioned to encourage the separation between a general type of higher education as a step in life-long learning (undergraduate level education) and a speciality and professional education (research-centered education at graduate levels).

Tsukuba was the representative show-case model of this new graduate-level standard. Whereas other established universities have adopted a single-track system providing five-year continuous programs (two years for master's degree and three years for doctor's degree) strictly confined within the disciplinary wall of each Gakubu-Faculty, Tsukuba offers, under a double-track system, two (or three) year terminal Master's Degree Programs and five (or seven) year consecutive Doctor's Degree Programs. The former programs are often called professional schools and the latter programs in Graduate School of Arts and Sciences. Master and Doctor Programs at Tsukuba are independently operated with different aims and their own deans and program directors.

The master programs at other universities are primarily intended for basic research and deeper disciplinary knowledge and skills, but Tsukuba's master programs aim at "training professionals with an academic and technical expertise and a broad intellectual outlook through a highly specialized and yet interdisciplinary professional education". Many foreign visitors told us that the outlook of our school of Area Studies in the character of its curriculum-structure resembles that of Columbus's School of International Affairs, and that our professional master degree program of management science and public policy studies has some points of similarity to the graduate programs of government administration at Princeton and of schools of business administration at major American universities. In our professional schools at master degree level, certainly, professional employees of governmental or business offices are also eligible for enrollment by way of their in-service training.

The academic purpose of our doctor degree programs is to provide students with an advanced knowledge of theories and research methods in each discipline together with some opportunities for interdisciplinary studies mainly based on the major-minor system in relation to subject-requirements in this program. The first aim is, in other words, to train students into "independent researchers capable of conducting original research. The doctor's degree programs consists of twenty-six programs in various fields, because those programs are so categorized that, more or less, they are respectively linked with the corresponding Research 'Institutes', which are, as I briefly mentioned before, organizational units for professors and their research. Here, we must, again, examine the main functions of the Institutes. Major universities in Japan, particularly national universities traditionally consist of several Gakubu-Faculties (or large-scale disciplinary departments, as many American specialists might call them). Each Gakubu-Faculty is again an assembly of several chairs, which respectively comprise one professor, one associate professor and one or two assistants. Each professor is fixed to a chair or can hold his office until he retires and junior faculty members in his chair, however competent, can not be promoted until a vacancy occurs. The chair system is thus liable to be a source of stagnation in academic activities. Tsukuba firmly decided to abolish this chair system and introduced a new system of 'Institutes' instead. Scientific advancement, particularly in interdisciplinary fields like international relations and human sciences, expedites the complexity and integrity of research in its contents and methods, so much so that quite a few fields of contemporary sciences are not necessarily suited for direct linkage with educational units at both undergraduate and graduate levels, except perhaps for the direct relation between disciplinary programs in School of Arts and Sciences (Ph.D program) and those research

'Institutes'. Separate and apart from the educational organization and curriculum-program unit, therefore, Tsukuba has set up, on the basis of affinity of speciality, twenty-six Institutes, to one of which every faculty member belongs, in conformity with his or her speciality. This means that Tsukuba has only one faculty in the university quite similar to the faculty of arts and sciences widely observed among Anglo-Saxon universities. This University Faculty, usually represented by the Senate, is thus divided into twenty-six Institutes which are the bases of professors' research activities, and also, from which they are sent out to the colleges, schools or graduate schools of the University in response to their deans' requests and the contents of curriculum programs. Each of those colleges and schools has its own faculty meeting which is responsible for students' learning and research.

Now, today's audience has come to realize, I hope, that Tsukuba is an experimental product of a melting-pot. Some parts of the Master-plan concerning the University-structure were modeled after the educational and administrative organizations of classical universities like Oxford, such as its Visitors System and student-oriented College system. Those rather new schools like San Diego or Sussex have offered us good examples of curriculum reforms. Some other aspects of the Tsukuba plan, such as its Research Institutes and College of Comparative Culture seem to be its own original, experimental models. We don't know to what extent we may call it an original reform model in education. In the end, we must modestly confess that, after all, Tsukuba must be a creation of the pressure of social demands in this changing world.

THE CURRENT STATE AND PROBLEMS OF TEACHING METHODS AT UNIVERSITIES AND COLLEGES IN JAPAN

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Abstract

Recently university professors in Japan have become interested in teaching methods. This phenomenon seems to be the result both of the pressure from the increase in the number of students and the educational policy to promote the improvement of university teaching (including provision of a special budget and establishment of educational technology centres at national universities).

Several educational innovations can be cited such as the development of technologies in instructional design and evaluation, development of CMI and CAI systems, application of telecommunication technology to university teaching, and development and use of AV media and teaching machines. Some of these are utilized in formal courses.

For example, well known in Japan are the use of slides, OHP, LL and VTR at many universities and colleges, the Central AV Service at Otsuma Women's University, use of CAI systems at the Kanazawa Institute of Technology, Hokkaido University of Education and Osaka Electro-Communication University, the TV interphone System with CMI at the University of Electro-Communications, microteaching at Tokyo Gakugei University, Okayama University and the Tokyo Institute of Technology, etc., and the computerized comment feedback system for academic achievement tests at Keio University and the Tokyo Institute of Technology.

However, generally speaking, the practical and systematic use of these technological innovations still remain a problem at a few universities and colleges. We must promote development and practice in the use of technological innova-

tions in university teaching as well as the diffusion of the idea of staff development and its implementation to support the improvement of university teaching methods.

1. Overview

Research on university teaching in Japan has mostly been concerned with historical, institutional and theorectical issues. Studies on practical teaching methods have rarely been undertaken these long years. Professors seem to have less interest in improving teaching methods than schools teachers.

However, recently the situation has slowly been changing. There may be two different reasons for this. One is related to a change in the attitude of university professors toward teaching. Since 1976, a budget for improving university teaching methods has been provided to those endeavouring to develop new teaching methods at national universities. Since 1971, educational technology centres and related organizations have been established at about 30 national universities. These government efforts should have stimulated the improvement of teaching methods at universities. The second concerns the increase in the number of students. Approximately 38% of 18-year-olds go on to universities for higher education. The traditional teaching methods designed for a small number of select students seem to be no longer applicable to the variety of students today.

Under this situation, a few continuing efforts have been made in advanced fields at some universities on a small scale. Among these are audio-visual education, utilization of VTR, use of computers and implementation of microteaching in teacher training.

Research papers on university teaching methods have been found in academic journals of educational technology and in journals of science and engineering education. The development and innovation of university teaching methods have gradually expanded their fields of application. Unfortunately, their practical utilization is still less advanced in university teaching than in school education. Particularly, it is very difficult to find any systematic analysis of instructional goals or systematic improvement of teaching at Japanese universities.

2. Design and Evaluation of Lectures

Methods of instructional design and evaluation and developed and well utilized in school education, due to the advance of educational technology in Japan. In contrast, their application is hardly seen in university teaching.

2.1. Analysis of instructional goals

Each professor should analyze his or her own instructional goals intuitionally and subjectively. Yamashita and others at Waseda University have applied the Item Relational Structure Analysis to analyze the structure of instructional programs for fundamental mathematics. They made three different sorts of graphs: a graph for instructional content structure, a graph for test structure and a graph for IRS. In order to evaluate the effects of teaching based on the graph for instructional content, they got responses from students on the tests constructed according to the graph for test structure. Then they analyzed the results by means of the IRS graph and thus were able to improve the composition of test items as well as the structure of instructional content.

2.2. Improvement of curriculum

Asai and others asked students to freely describe association words to the term 'educational technology', after teaching two-unit courses in educational technology. Dividing these words into two categories – affective image and knowledge – they found that the number of negative images (mechanical, too mathematical, anti-humanistic, etc.) were more often cited than positive ones (systematic approach to education, education in the future, effective, etc.) and that the number of words related to educational equipment and computer use in education was greater than that of those associated with teaching learning process, information science or human engineering. Based on these findings, they improved their educational technology curriculum for the following academic year.

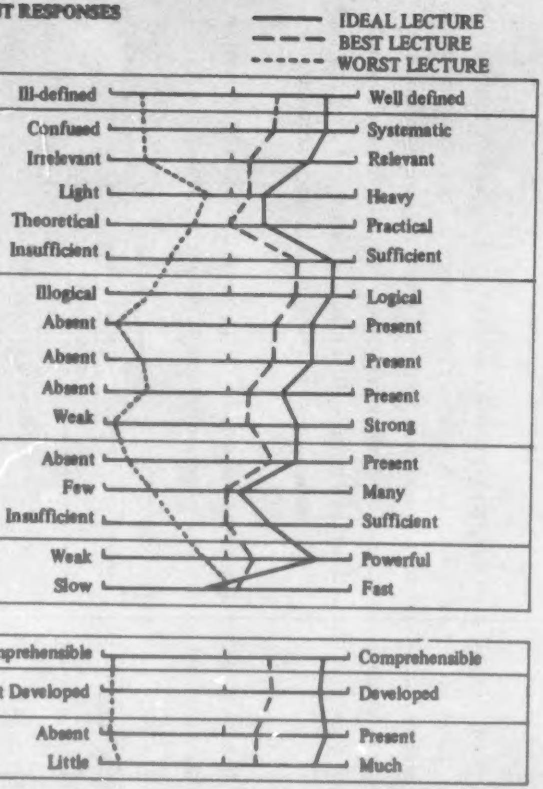
2.3. Evaluation of lectures

Evaluation of lectures by students is rarely undertaken at universities and colleges in Japan.

Among the few examples can be seen that at the Faculty of Engineering at Keio University and a partial effort at Musashi Institute of Technology. In the latter, students were asked to evaluate 12 lectures in terms of 20 items such as speed of lecture, degree of difficulty, use of examples, tasks from professors, etc. Professors were also asked to evaluate their own lectures on the same items. The results showed that professors generally evaluated their lectures more highly than the students did.

Sakamoto at the Tokyo Institute of Technology asked 262 students at seven universities and colleges to evaluate the ideal as well as the worst lectures they had had with 20 items for evaluating lectures. Figure 1 and Table 1 show the results. The following eight prescriptions were derived in order to improve lectures: (1) constructing a well-defined curriculum, (2) organising the content on a systematic basis, (3) covering all essential points, (4) providing a sequential development on a logical basis, (5) presenting an introductory summary, (6) making explanations rigourous, (7) presenting explanations in an original form, and (8) speaking persuasively.

Figure 1 EVALUATION TABLE FOR IMPROVING LECTURES AND STUDENT RESPONSES



1. CHARACTERISTICS OF THE LECTURE

CURRICUMUM	1. Structure of the curriculum	Ill-defined	Well defined
CONTENT	2. Organization of the lecture	Confused	Systematic
	3. Relevance to other subject areas	Irrelevant	Relevant
	4. Type of content	Light	Heavy
	5. Treatment of content	Theoretical	Practical
	6. Coverage of essential points	Insufficient	Sufficient
SEQUENTIAL DEVELOPMENT OF LECTURE	7. Logical development	Illogical	Logical
	8. Introductory summary	Absent	Present
	9. Cumulative development	Absent	Present
	10. Supportive evidence	Absent	Present
	11. Rigour of explanation	Weak	Strong
METHOD	12. Original style of presentation	Absent	Present
	13. Handouts	Few	Many
	14. Time to take notes	Insufficient	Sufficient
IMPRESSION	15. Force of appeal	Weak	Powerful
	16. Speed of presentation	Slow	Fast

2. EFFECTIVENESS OF THE LECTURE

COMPREHENSION	17. Content of the lecture	Incomprehensible	Comprehensible
COGNITIVE COMPONENT	18. Method of thinking	Not Developed	Developed
AFFECTIVE COMPONENT	19. Motivation for further study	Absent	Present
	20. Enjoyment of study	Little	Much

Table 1 RELATIONSHIP BETWEEN EFFECTIVENESS AND CHARACTERISTICS OF THE LECTURE

Effectiveness of the lecture Characteristics of the lecture		17. Content of the lecture	18. Method of thinking	19. Motivation for further study	20. Enjoyment of study
CURRICULUM	1. Structure of the curriculum	○			
CONTENT	2. Organization of the lecture	○	○		
	3. Relevance to other subject areas				
	4. Weight of content				
	5. Treatment of content				
	6. Coverage of essential points	◎	○	○	○
SEQUENTIAL DEVELOPMENT OF LECTURE	7. Logical development	◎	◎	○	○
	8. Introductory summary	○XXX	XXX	XXXX	XXXX
	9. Cumulative development	X	X	X	
	10. Supportive evidence				
	11. Rigour of explanation	XXX	XX	XX	XX
METHOD	12. Original style of presentation	XX	XX	XX	XX
	13. Handouts				
	14. Time to take notes				
IMPRESSION	15. Force of appeal	○XXX	XX	XXXX	XXXX
	16. Speed of presentation				

Figure 2 also shows evaluation of lectures by means of line-connecting content analysis of a lecture. Thus we can get student feedback very easily.

2.4. Formative Evaluation of Academic Achievement

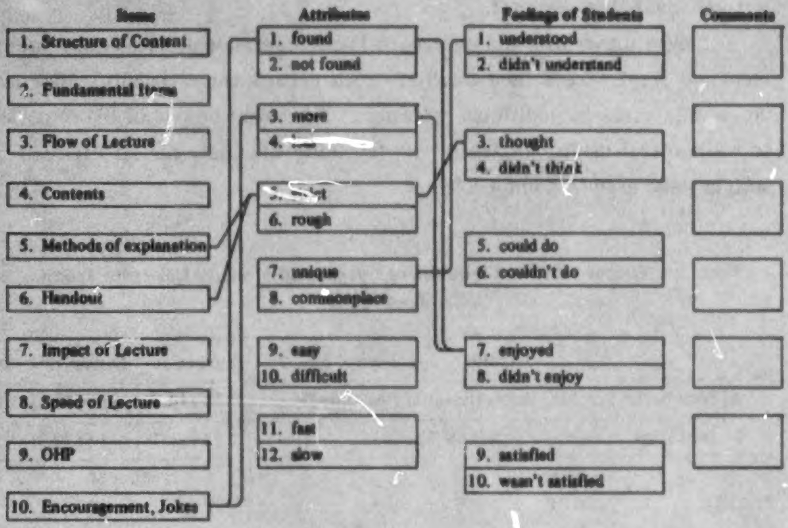
Kitagaki and others at the Tokyo Institute of Technology developed the comment feedback system. They asked students in an 'electro-magnetics' course to answer questions by means of optical mark cards. The cards were processed by computer. The test scores and feedback comments as well as the name of a classmate to consult with to correct misunderstandings were given to the students.

In the university of the air project, answers by students to questions about 20 or more items concerning the pilot TV and radio programmes were sent back

Fig. 2 Evaluation of Lecture

NAME OF LECTURE . . . .Educational psychology
NUMBER OF STUDENTS. .80

Each student marked three lines.
Figure shows more than 10 lines.


Items
1. Structure of Content
2. Fundamental Items
3. Flow of Lecture
4. Contents
5. Methods of explanation
6. Handout
7. Impact of Lecture
8. Speed of Lecture
9. OHP
10. Encouragement, Jokes
Attributes
1. found
2. not found
3. more
4.
5.
6. rough
7. unique
8. commonplace
9. easy
10. difficult
11. fast
12. slow
Feelings of Students
1. understood
2. didn't understand
3. thought
4. didn't think
5. could do
6. couldn't do
7. enjoyed
8. didn't enjoy
9. satisfied
10. wasn't satisfied
Comments

to the central office in the form of optical mark cards. The scores and comments were processed and sent back again to the students.

3. Use of Educational Devices and Equipment

At universities and colleges, slides and films have been rather popular in teaching various subjects. Recently, OHP, VTR, LL, TM and computers have also been gradually introduced.

3.1. Use of Educational Media

At many universities and colleges, a certain number of professors are more or less using various kinds of educational media in their lectures.

Asai conducted a survey on the use of educational media at Kobe University and gained responses from 44% of professors in the Faculty of Education and 50% in the Faculty of Engineering. Table 2 shows that there some professors use media, but many are not using them in their teaching at all. Among the reasons for non-use, 40% of the professors pointed to a lack of facilities and materials. Table 3 shows the results from the students in the Faculty of Education. In 80% of lectures using educational media, students considered the media effective. Also, half of the students hoped that media would be used in lectures where they were not.

At most universities and colleges in Japan, educational devices and equipment are prepared and used locally in each department or faculty. Materials are usually made by individual professors. This might be one of the obstacles to wider use of media. In Japan, very few universities have central service units such as those in the UK and USA.

Table 2 Present State of Utilization of Educational Media in University Teaching (March, 1980)

Faculty		Education	Engineering
A Number of Teaching Staffs (Ratio of Response %)		34 (44.2)	69 (50.4)
B media use (n/A %)		13 (38.2)	14 (20.3)
media	Slide	5	11
	OHP	5	0
	Film	0	1
	VTR	2	1
	Tape Recorder	3	1
	Microphone	1	1
	Computer	1	1
Condition of Devices, Screens	good, neutral	13	7
	bad	0	7
C Non-user (n/A %)		21 (61.8)	55 (79.7)
reason (n/C %)	not necessary	8 (38.1)	23 (41.8)
	no devices	5 (23.8)	14 (25.5)
	inconvenient	0 (0)	2 (3.6)
	no materials	3 (14.3)	9 (16.4)
	producing materials troublesome	1 (4.8)	9 (16.4)
	not good at media use	3 (14.3)	0 (0)
	belief in non-use	2 (9.5)	4 (7.3)

Table 3 Present State of Utilization of Educational Media in University Teaching (Faculty of Education) (March, 1980)

A Number of Students (Ratio of Response %)		198 (56.3)
B use of media (n/A %)		83 (41.9)
Frequency of use (n/B %)	Usual	33 (39.8)
	often	27 (32.5)
	rare	19 (22.9)
	no answer	4 (4.8)
Effectiveness (n/B %)	① very effective	39 (47.0)
	②	25 (30.1)
	③ neutral	9 (10.8)
	④	4 (4.8)
	⑤ no effect	2 (2.4)
	no answer	4 (4.8)
C no use of media (n/A %)		115 (58.1)
desire for media use (n/C %)	necessary	11 (9.6)
	better	48 (41.7)
	no	49 (42.6)
	no answer	7 (6.1)

The central audio visual centre at Otsuma Women's University may be one of the most successful. It has one director and two full-time technicians and seven full-time assistants who produce materials for professors and assist in the use of media in classrooms. Table 4 shows the number of productions per year and Table 5 shows the use of media per month in the 1977 academic year. We can see here that various sorts of media are being widely used in teaching. The original body of the centre was LL in the Department of English Literature.

Table 4 Media Production of Otsuma Women's University

media / academic year	audio tape		VTR tape		Trans-parency	slide	photo	negative		others
	open	cassette	open	cassette				B/W	color	
1973	163	16	22	–	252	758	244	1	1	–
1974	201	12	28	–	323	1,302	493	31	8	–
1975	206	26	24	–	2,456	3,428	468	52	44	–
1976	216	160	48	–	1,228	3,572	371	39	8	–
1977	283	209	63	7	981	1,943	471	22	23	0
1978	247	295	50	12	1,109	2,435	1,161	41	76	13

Table 5 State of Media Use at Otsuma Women's University (March, 1978)

media month	OHP	Slide	Portable Tape Recorder	Open Tape Recorder	Cassette Tape Recorder	Stereo Equipment	16mm Film	8mm Film	35mm Camera	Copy machine	VTR	TV monitor	TV camera (B/W)	TV camera (color)	Portable VTR
April	25	6	28	33	64	2	3	0	0	2	1	1	0	0	0
May	33	15	61	42	83	1	11	0	3	0	6	6	0	0	0
June	45	14	65	87	114	1	26	2	2	0	6	6	0	0	0
Kuly	25	5	33	36	37	0	15	1	3	0	0	0	0	0	0
September	38	9	23	43	58	3	3	2	2	1	3	3	0	0	0
October	67	16	49	89	112	0	16	0	2	3	1	1	0	0	0
November	67	23	57	60	64	1	21	1	3	5	8	8	6	0	0
December	10	1	6	13	14	0	1	0	1	5	2	2	0	0	2
January	54	15	36	59	33	1	14	3	6	5	3	3	0	0	0
February	3	5	5	3	6	0	0	1	0	0	0	0	0	0	0
March	4	2	4	0	1	0	1	1	2	1	0	0	0	0	1
Total	371	111	367	465	586	9	111	11	24	22	30	30	6	0	3

Nowadays, LL seems to be established at almost all universities and colleges. Also, some universities have educational technology centres or similar entities. In this connection, we can expect that central units for preparing and providing effective services for teaching would be set up at many universities, if we could get the professional personnel. However, this would be very difficult in terms of budget and administration.

3.2. Establishment of AV lectures

Many universities have auditoriums and lecture rooms equipped with AV facilities, but it seems that, unfortunately, many professors are not utilizing the AV facilities when they use those rooms.

The Kanazawa Institute of Technology established five AV lecture rooms in one of its new buildings. Two of them are connected by coaxial cable to the educational technology centre at a distance of 800m. Slides, 16mm films and

VTR images can be transmitted to the lecture rooms from the centre according to the professor's request. In other lecture rooms, most of the facilities are automatically set by pushing buttons on the lecture table. Table 6 shows the state of use of AV facilities in these lecture rooms. It was reported that in the 1977 academic year, 60% of professors used the AV media when they gave lectures. This ratio of utilization is very high. The highest percentage (64.5%) used 16mm film; the next was VTR use (25.8%). This university also has a self-study room with six AV carrels for individual study. Each carrel, except one, is equipped with one color TV monitor and one U-matic VTR. One carrel is connected to the centre. Students can view VTR tapes transmitted from the centre according to their needs.

Table 6 Use of AV Media at Kanagawa Institute of Technology (1971)

Room	Number of class hours/week (out of 22 class hrs)	Class hours using AV media
AV Lecture room (1)	17	11
(2)	18	10
CCTV Lecture room		
(1)	20	12
(2)	21	14

3.4. Other Devices

Some professors are using automatic controlled slides and tape units for instruction of experiments and for individual self-study.

Suetake and others at the Tokyo Institute of Technology developed the windmill type of teaching machine and used it for students in the 'electronics' course. Considering the ATI effects, they invented two different types of programmes for the same content in terms of style of presentation and KR; one includes more jokes and irony in the form of cues and KR than the other.

The Tokyo Women's Medical College developed a patient simulator for resuscitation training.

As described above, remarkable innovations for improving teaching methods are seen at some advanced universities, but, generally speaking, the situation seems to be one of poor use of AV media in most cases. It can be said that lectures using only chalk and blackboard still constitute the most popular form of university teaching in Japan.

4. Use of TV and VTR

Nowadays, it can be said that there are no faculties without VTR and TV among universities and colleges in Japan. It is, however, assumed that only small number of professors are using them very often in teaching, while many are not.

4.1. Use of TV programmes

At Akita University, educational TV programmes on 'psychology' were presented to students. For comparison, a professor directly taught students the same content using the same description and materials as those used in the TV programmes, followed by an evaluation. The results showed that the lecture by VTR was more beneficial for students in terms of interest value, satisfaction, motivation, audibility and atmosphere, but with some difficulties in note taking and summerizing and somewhat tiring effects.

At many universities, TV programmes are more or less produced by staffs. Kanazawa Institute of Technology has approximately 500 VTR programmes including 59 on electric circuits and 42 on physics. Okayama University has 150 programmes, while Tokyo Gakugei University has 3,600 programmes including 100 self-produced TV programmes and recordings of students' practice teaching. At Kitasato University and Kawasaki Medical College, TV is widely used. At Chiba University, VTR lectures were used for evening classes. When a professor was to give the same lecture in both daytime and evening classes, the daytime lecture was video-taped and shown in the evening class with the professor present. He answered questions raised by the students. There was no significant difference in achievement between the two groups. It was reported that merits of this were: (1) the VTR lecture was effective in improving lectures, because the professor could see his own teaching on TV, (2) VTR tape is easily produced, and (3) students who were absent from lectures could see them later.

4.2. Use of CCTV

CCTV systems are set up at many universities. However, those for teacher training at national universities are quite unique in that they connect educational sections with affiliated primary and secondary schools by coaxial cable. Most of these involve reciprocal transmission systems. Actual teaching in schools can simultaneously be transmitted to the university, and, in reverse, instructional materials can be sent to schools from universities. In the systems at Okayama University and Kagawa University, the distance between university and school is no less than 7km. The appendix gives a summary of the present state of CCTV utilization. The system is generally utilized for studying classroom teaching in affiliated schools and for pre-training in practice teaching. But there are some difficulties in using it more effectively and more often – lack of technicians, budget, facilities and cooperation between universities and schools.

Takayama at Akita University taught educational psychology by a televised teaching method, and obtained responses from about 160 students who attended the ordinary lecture class and televised lecture class. The results showed that students were able to attend the televised lecture class at each with little physical fatigue, as they attended with the attitude of an onlooker, but eventually became dissatisfied and failed to participate in communication activities.

Sakamoto and others at the Tokyo Institute of Technology conducted a series of televised lectures on identical subject matter in a similar situation. Three conditions were set in the televised lectures: (1) with the professor's face on one TV monitor and two types of instructional material on the other two TV monitors, (2) with any two TV images frozen by the use of a video memory unit and any single moving image on three TV monitors, and (3) with no professor's face but two types of instructional material on two TV monitors.

There were no significant differences in academic achievement among the three groups. But there were significant differences on some items between conditions (1) and (3).

The conclusions were: (1) that the professor's face is assumed to be important to make a lecture more attractive and more impressive, (2) that it is possible to use a one-channel communication system with a video memory unit without reducing the attractiveness and positive impressions of the lecture, and (3) that a professor should ask the students to answer questions and ask them to discuss problems with each other in the case of condition (3).

On the basis of these results, we are planning to set up new lecture transmitting system between the main campus and remote campus at a distance of 30km.

The University of Electro-Communications developed a unique remote teaching system called the 'TV and interphone method' for instruction of a 'basic electrical experiments' course in 1963. A two-way TV communication system was set up between five experimental laboratories and the instructor's room with five TV monitors. Instructors could observe student behaviour by means of a moving camera on the ceiling of each laboratory. Their voices are also sent by interphone to the instructor's room. Students could observe the instructor's demonstration of experiments and receive advice through any one of four or six TV monitors in each laboratory. Three-minute VTR instruction if particularly important to help students learn. In order to select suitable VTR tapes and to give appropriate advice, a CMI system is utilized. CMI can show immediately the student's name and other information such as achievement and attendance, according to the instructor's request. This TV and interphone system, including CMI, has been effectively utilized since 1970.

4.3. University Extention by Broadcasting

Five national universities, i.e., Tohoku University, Kanazawa University, Osaka University, Hiroshima University and Kumamoto University produced and broadcast programmes for university extention courses, six of which are using TV and six of which are using radio. Of students responding to a questionnaire in 1978, 264 out of 385 said that TV viewing and radio listening were related to good results in terms of psychological responses such as "familiarity with the subject matter," "awareness of related matters," "motivation to study," "comprehension" and "knowledge," though these are not always significantly related to high academic achievement (Hiroshima University).

4.4. University of the Air Project

Since 1969, several governmental committees have presented ideas, basic guidelines and a master plan for a University of the Air. In parallel, since 1971, various sorts of pilot radio and TV programmes have been broadcast. Several surveys on estimating educational needs and studies of effectiveness of programmes have also been conducted. In 1978, the National Centre for the Development of Education by Broadcasting was established as an institution to be generally available for cooperative studies on the use of broadcasting in university teaching. This centre investigates the possibility of management and implementation of the planned University of the Air and will serve as the core of the University of the Air expected to be inaugurated in 1981.

In 1980 the Centre produced and broadcast 14 TV programmes and six radio programmes. Each was composed of a series of 15 45-minute programmes. Some of these were accompanied by two instruction sessions while others included correspondence instruction by means of optical mark cards. 1161 student responses out of 2039 to a questionnaire show that:

(1) 21.3% of students viewed all 15 programmes in the series and 45.9% viewed them intermittently to the last programme, (2) lectures were consistently structured, (3) materials were ordered so as to be easily understandable, (4) professors on TV spoke comprehensibly, (5) programmes were effective in promoting understanding of related matter, the logic of the subject matter, motivation to study and understanding of fundamental principles, and (6) correspondence instruction with optical mark cards and comments by computer were necessary.

5. Use of Computer

Computers are widely used in university teaching in such situations as display control, training machines, CMI, CAI and information retrieval.

5.1. Use of Microprocessor

It is assumed that at many universities, microprocessors in particular will gradually become utilized in teaching and some will be as capable as the CAI system. Today several systems are being developed and utilized experimentally.

Kurashige and others at the Muroran Institute of Technology developed a microsystem for individual instruction which was composed of a microprocessor and random access VTR. Obana and others at the University of Electro-Communication applied the microcomputer to the training of telegraphic technique. Kusakabe at Yamagata University developed a TV display system to present animation generated by microcomputer for describing basic concepts of electricity.

There may be many cases in which microcomputers can be used for calculating test results in various ways.

5.2. CMI

Computers are widely and practically utilized in the fields of educational administration and management such as registration, record keeping, data processing of entrance examinations, etc.

Yokoi and others at Tamagawa University developed a system of Computer-Assisted Retrieval Analysis for Test items (called the CARAT system). This is an item bank system controlled by computer.

There are not a few cases in which computers are utilized for processing test data and for showing output in various form. Some of the output include average test scores, students' own scores and feedback comments. For example, these may be seen in the 'electro-magnetic' course at the Tokyo Institute of Technology and some of the pilot TV programmes of the University of the Air project. Sakamoto and others at the Tokyo Institute of Technology developed a student feedback system by which professors could obtain information and improve their lectures.

5.3. CAI

In Japan, more than 20 universities have the CAI system. But in most cases, these are set up for research on system development and analysis of the teaching process and very few are practically utilized in university teaching.

Among them, the system at the Kanazawa Institute of Technology is the largest. Students learn at 100 terminals with a Plazma display and random access slide projector for 250 images. The system at Hokkaido University of Education was expanded in 1979 when a system with 30 terminals from the Japan Society for Promotion of Machine Industry was moved there. These two systems are usually used in formal university courses.

The CAI system at Tsukuba University has the highest competence, but now is generally utilized for research purposes, exclusing instruction in the informations sciences.

In medical education, there are other examples. In another type of CAI system at Tsukuba University, courseware for patient simulation, basic medical science, community medicine and others was developed and used in teaching. It was found that students were interested in learning by CAI. At Asahikawa Medical College, practical training using a computer is undertaken in the vital statistics course.

At the University of Electro-Communications CAI for Morse communication training and at Toyohashi University of Technology a training system for touch typing by TSS were developed and used, and at Osaka University, a computer-aided advising system for FORTRAN programme debugging (called ADVISOR) was developed.

Osaka Electro-Communication University developed a Computer Assisted Teaching System for group learning, called CATS, which was utilized in 'extra-curriculum' courses and started to use it practically from 1979. CATS is composed of a microcomputer, three random access slide projectors, a cassette tape recorder and keyboard. The courses offered are 'differential analysis method,' 'safety engineering,' 'microcomputers,' 'introduction to computers' and 'FORTRAN.' As three different levels of programmes – quick, standard and steady – are made for the same content, students can learn with any one of the three levels suitable for them, as controlled by computer. After learning each unit, they can change the level of the programme according to the comouter's instruction.

6. Innovation in Teaching Training

In the past several years, microteaching and teaching simulation games have been introduced into teacher training at universities. Educational technology courses have also been started at some universities, including the Tokyo Institute of Technology, Kobe University, University of Tokyo, Okayama University, Keio University, etc.

6.1. Microteaching

At the Tokyo Institute of Technology, simplified microteaching was begun in the pre-training session for practice teaching in 1971. It was found both in pre-training and also in practice teaching that the experience of microteaching with video confrontation is very effective. According to studies conducted at Kagawa University, teaching skills improved by microteaching were in the areas of response control, diagnosis, evaluation, and the presentation of intellectual and affective KR.

Since 1974, Okayama University has conducted microteaching with several subjects. On the basis of such experiences, that university developed a special lecture room for microteaching in 1978. Tokyo Gakugei University has also continued microteaching for student teachers, and developed a special system for instructional simulation.

Nowadays, at many universities, microteaching is undertaken during teacher training. Table 7 shows the present state of the art.

Table 7 Present State of Microteaching at Universities in Japan (Koganei, Inoue, etc.)

Name of University	micro-class	feedback	modelling	repeat lesson	teacher education
Iwate	student	observation		same person	pre-training
Miyagi Education	student	VTR			pre-training
Ibaraki					
Chiba	teacher	VTR	VTR		pre-training
Yokohama	student	VTR			pre-training
Tokyo Inst. Tech.	student	VTR		same person	pre-training
Tsukuba	student	protocol	VTR	same person	pre-training
Tokyo Gakugei	student	VTR	VTR	same person	pre and during
Aoyama Women's Junior College	teacher	VTR	VTR	same person	pre-training
Fukui					
Gifu					
Kyoto Education	teacher	observation		same person	in-service
Kobe	student	VTR	VTR	other person	pre-training
Okayama	student	VTR	VTR		pre-training
Kagawa	student	VTR	VTR	same person	during and post
Nagasaki	student	VTR	VTR	other person	pre-training

6.2. Education for Educational Technology

Education in educational technology would be one way to improve university teaching. Several universities conduct such courses. However, most of them are not for university teacher training, but for the training of primary and secondary schoolteachers. Table 8 shows examples from the curriculum at Okayama University and the Tokyo Institute of Technology. Among them, only the Tokyo Institute of Technology offers such courses for graduate students, including faculty members. Unfortunately, participation of faculties remains small. Though usually staff development of faculty members is rarely undertaken at Japanese universities, one exception is the experience of the Association of Medical Teaching at University.

Table 8 Examples of Content of Educational Technology Courses

OKAYAMA UNIVERSITY: Educational Technology, by I. KONDO

1. Orientation for the course.
(What is Educational Technology?)
2–4. Basic idea of educational tools, devices and equipment.
5–6. How to use teaching machines effectively (OHP, slide projector, 8/16 mm film projector, etc.)
7–8. How to observe the teaching-learning process by showing video-taped class activities and how to design courseware.
9. Comparison of the performances of an experienced teacher and a student teacher by the use of two large video projectors.
10. Observation of real class activities, conducted by an experienced teacher through the CCTV system.
11. Designing a lesson plan, and preparing instructional materials necessary for the plan.
12–15. Performing microteaching with the plan and materials prepared in item (11).

TOKYO INSTITUTE OF TECHNOLOGY
GRADUATE COURSE: Advanced Educational Technology, by K. SUETAKE & T. SAKAMOTO

Content:
1. Education from the technological standpoint
2. Teaching-learning systems and process
3. Principle and methodology for presenting information
4. Utilization of machines for presenting (image) information
5. Programming for learning
6. Feedback mechanism in teaching-learning system
7. Utilization of electronic techniques for education
8. Teaching materials and teaching machines
9. Utilization of computer in education
10. Development of discovery-learning system and creativity
11. Systematic instruction
12. Systematic approach to education

7. Concluding Remarks

In Japan, there are three big projects under way concerning educational innovation. The first is the common first entrance examination for national universities. The second is the University of the Air project. The third is development of a data bank and nationwide network for research information.

The first began in 1978 and is now progressing successfully. The second and third are also expected to be successful from the viewpoint of educational innovation. The second is also related to the improvement of university teaching methods.

As far as other innovations in university teaching methods are concerned, various sorts of trials and applications are proceeding. However, it may be said that, unfortunately, most remain at the hobby level on the part of the professors trying them.

A few methods can be considered as being well implemented. Among these are, for example, utilization of slides, OHP, LL, VTR and so on. Even these media do not seem generally used in university teaching, excluding a few advanced universities such as Otsuma Women's University, Kanazawa Institute of Technology, etc.

It seems that computers are often effective in improving university teaching. Many kinds of new systems are being developed in various parts of Japan. However, most are used only experimentally or for research purposes. Among them, the CAI systems at the Kanazawa Institute of Technology and Hokkaido University of Education, CATS at the Osaka Electro-Communication University, TV-interphone system with CMI at the University of Electro Communications, etc., should be practically utilized in formal teaching schemes.

Also, the microteaching for schoolteacher training at the Tokyo Institute of Technology, Okayama University, Tokyo Gakugei University, and others, and teaching simulation games at Kyoto University of Education are expected to come into general use.

Generally speaking, university professors in Japan do not seem interested in staff education for improving university teaching methods.

In this situation, we must face and solve a number of problems in the near future in order to improve university teaching methods:

1. promoting use of audio visual media.
2. establishing media service systems.

3. diffusing the idea of staff development.
4. training faculties in instructional design and evaluation.

We are very happy from the standpoint of researchers, because many problems remain to be solved in this field.

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USEWARE OF OHP

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1. Introduction: Harmonized and balanced combination of Hardware, Software and Useware.

The author would like to explain something about the title at first, that is, the meaning of the new word USEWARE.

The author understands that both good HARDWARE and SOFTWARE have very important places in Educational Technology. In addition, USEWARE, how to use them in other words, is very important as well. He thinks that the most important thing is Educational Technology is the harmonized and balanced combination of these three WAREs.

In the case of making instructional video materials, for example, it seems there is a fashion in Japanese educational field in which they want to use a highly equipped video studio similar to one of a broadcasting corporation. But we can make good educational video materials by the use of a very simple video system, equipped with one portable camera, one monitor, one microphone and one simple and fine VTR with electronic editing system. Hence we can now get a harmonized and balanced video studio as we understand the title.

Educational video system is very useful in education, when they are equipped in a classroom as mentioned above. It is because the system can show to students various pictures; still picture, motion picture, slow-motion picture and animated picture, etc.

We, however, have some hesitation to use this system for the reason that we need much effort in producing educational video materials and also showing it to students. It makes us feel rather troublesome. (Though it may not so troublesome for the teachers who have begun to make it in practice.)

But if we use OHP with lightly resourceful ideas, not only still pictures but also the other various pictures mentioned above can it show to the students.

The author feels OHP is a very effective educational instrument in place of a blackboard.

The famous booklet "You and Your Students" published in MIT is a wonderful guide book for the beginner lecturers in universities and colleges, which was translated and introduced to Japanese faculty member by courtesy of IDE, and made great influence on them. But the author feels it is rather out of fashion in style, because there is no touch on "How to Use OHP."

In this short paper, the author would like to explain every modes of "Useware of OHP" for the beginner lecturers and veterans as well in universities and colleges.

2. The first step of "Useware of OHP" (Useware of roll-sheets for OHP)

Whenever the author uses OHP, he prepares two sets of OHPs, that is to say, he puts a transparent roll-sheet on the stage of each OHP, and at first he uses the right OHP, for example, writing or drawing with oil pens, until the sheet is full. Then leaving the right OHP as it is, he turns to use the left OHP until it is full. Then he rolls up the sheet of right OHP so to come the next blank part of the roll-sheet. (This is so simple that we do not need a wiper for blackboards.) This is how the author uses OHP.

Now let us explain why we need two OHPs. In the case of blackboards, the ratio of hight and width is 1.5 – 3, and it is so wide that we have enough space. But in the case of OHP, this ratio is only 1. It means when we use only one OHP the patterns have to be changed one by one, so if some student wants to see a pattern a little longer it is difficult to satisfy his require.

If we use two OHPs, we can get many merits. For example, showing the transparency (chart, graph, etc.) prepared beforehand by one OHP, we can use the other OHP to explain it. Another example is that we can insert a semi-completed transparent sheet between the OHP stage and a roll-sheet, and add more informations to the sheet with various colored pens to complete the sheet according to the explanation.

Meanwhile, we can consider to use both of OHP and blackboard at the same time. But the hands soiled with chalk dust are not good at OHP sheet. Not only OHP sheet but also our cloths etc. cannot keep clean from the chalk powder. As the author is afraid this demerit is more than the merit, he recommends that you always use two OHPs.

At the end of your lecture, rolling up the sheet swiftly from the beginning, you can easily review the lecture again. And if it is necessary, you can cut off some point parts of the sheet to show them at the start of the next lecture. Saying to your students, "Now, I lectured last time that . . . . . " is a good useware of OHP. To survey swiftly, it is better not to roll up the OHP sheet but to simply hang down.

Another merit is that the results of every "Question and Answer" which was exchanged between you and your students can be kept on the sheet completely. (In the case of blackboards, they are wiped out and vanished.) This will be a good data for your new book, if in future you would come to write a book on the contents of your lecture. It is because the students actually in front of you stimulate you to get better and vivider ideas than just sitting at the desk and consider. These vital informations which remain in OHP sheet are very useful.

3. Useware of transparent films for OHP

Now those full used roll-sheets can be on file after being cut off a suitable size with scissors according to each item.

When you place these sheets in a file, you should better put a white paper in between each sheet. Because it prevents the ink of the sheet from smearing each other, and moreover, each sheet becomes clear to see when you arrange the order of it as to progress of your lecture.

But there are some points you should be careful at your lecture, when you use those sheets which have already well prepared. If you put a pattern suddenly on the OHP stage and show it to your students, they should be puzzled for too much information in one pattern at the same time.

So, in this case, the inserted white paper mentioned above can be used. On the OHP stage put the paper upon the pattern, and as to your explanation sliding it little by little is one of techniques.

But, in this case, as the part of the sheet covered with the paper is shown black on the screen, some of the students might be irritated because they eager to know what is the hidden part.

So, in this occasion, some quiet color transparent sheet like as blue or green can be used instead of a paper for use of cover. Then students can see what comes next and be at ease. The most important thing is to find the methods and techniques with the mind of your students.

As to another way which the author will mention later, to use a pointer well is the more effective technique.

4. Useware of copied transparent film

To make transparencies, just copying the illustrations from textbooks, reference books and magazines etc., is very effective.

In this case, special copying machines for OHP sheets are useful. There are many types like as 'TRAPEN-UP,' 'THERMO-FAX' and 'XEROX.' The former two are the heat-sensitive type so that the original must be written with something contains carbon. If not so, you have to make a XEROX copy once, and then utilize those machines.

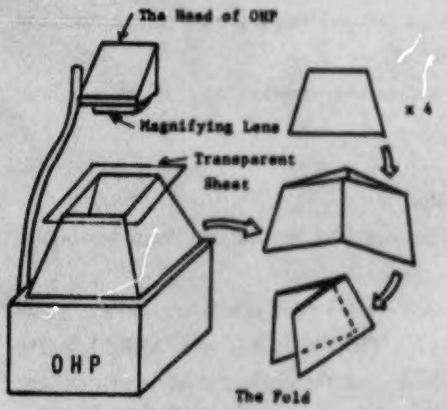
Among those three, 'TRAPEN-UP' is the unique copying machine which makes a copy with big flash lamps. Being produced in Japan and utilizing vinyl sheets as transparent films are the cause of its low running cost. While, 'THERMO-FAX' can make any color patterns, if you choose a suitable kind of infrared transparent films. When you want to change the mood or reflesh your class, colored transparencies are very suitable.

Students are by no means "machines." However good the lecture may be, sometimes to change the mood is very important factor as one of lecture techniques. Colored-sheet patterns are very effective in this case.

5. Magnifying projection of OHP

The size of the stage of OHP is about 25 x 25 cm^2, and it is projected on a screen (1.5 – 1.8 m) magnified about 6 to 8 times as large as the stage size. Therefore, if you copy some diagram from a textbook or a related book to make OHP sheet, the projected image of it may be too small for the students sitting at back seats.

In this occasion, fix a magnifying lens to the OHP lens. The diameters of two lenses should be almost the same as each other. And then raise up a little the OHP sheet from the OHP's stage to get a clear and bright magnified diagram on a screen. The stand for raising up and holding the sheet is truly simple. (See figure 1.) Please try to make it by your hands.



Cut off cardboards into 4 trapezoids, and stick them each other with cellophane tape.
After the presentation, you can fold it and carry it portably.

Fig. 1 The Stand for Holding a Transparent Sheet

The author is sure the effectiveness of OHP becomes much higher with the help of this instrument. For the people who have no will to make it by hands the author recommends the devices mentioned below which are in market.

[OHP Magnifying Projection Instrument]

RISO-KAGAKU Co., Ltd.	
For magnifying 3 times	¥20,000
For magnifying 1.5 times	¥18,000
FUJI PHOTO FILM Co., Ltd.	
For magnifying 1.5 and 2 times (FUJICS OHP EW-1)	¥160,000

The latter OHP has two lenses in turreted system for magnifying 1.5 and 2.0 times with the OHP own lens. And in accordance with the magnifying lens which you turn to adjust to the OHP lens, the stage comes to rise automatically and stop at the point of focus. The structure is very unique.

6. Useware of a pointer

To tell the truth the most important and effective educational instrument is a pointer. The author will explain about it from now on.

"Audio Visual Technique" is basically standing on the idea that we should use both of our eyes and ears which are the organs for receiving informations. Many reports and data show that either eyes or ears alone are not well enough, but use of both is much more effective for us to transmit informations. (The effect is more than 10 times.)

When the author welcomed Dr. F. M. Dwyer, a prof. of the Pennsylvania University (UDIS), by courtesy of JSPS and made a lot of discussions with him, this topic was also caught at the time.

Our conclusion on it was that, if there is any correlation between the informations received by eyes and ears, the large effect in transmitting informations may occur by this correlation. This is ver clear when we just consider the next simple example.

In a classroom a teacher is projecting a OHP pattern (say ABC) on the screen, but he is talking about another matter (say XYZ) which has nothing to do with ABC. Indeed he is using an AV instrument, but we cannot say he has a good command of AV techniques. Because, even though the students want to listen to the teacher's XYZ, the pattern of ABC hits their eyes and draws their attention. Contrarily if they see the pattern ABC, the teacher's words of XYZ just pass through their ears out.

Now the author can say that when a teacher wants to inform "ABC" to his students, to show the pattern ABC and to talk about ABC at the same time is the basic point of AV technique. If there happens to need to talk another information XYZ, he should switch off the projector of ABC pattern.

That is to say, put ABC into the students' eyes, and put ABC into their ears, then they say "Oh, I see!" (This is a game of rhyming 'ABC' and 'I see.')

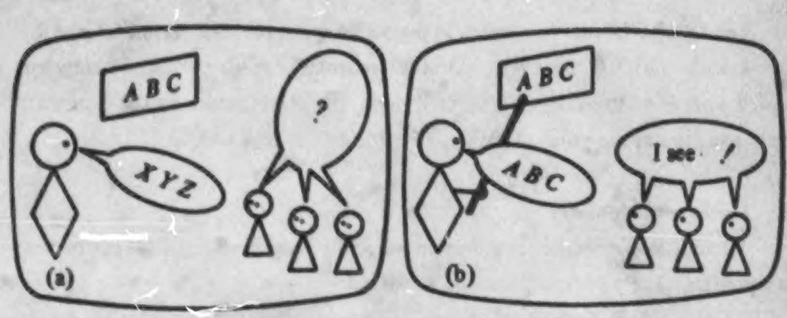


Fig. 2 Fundamental Idea of Audio-visual Technique

The mutual relation [correlation] between each information through eyes and ears is very essential factor in AV technique. Therefore, to improve this correlation more effectively a pointer is recommended by the author – this is a very concrete device for it.

If we use a suitable pointer at important point of the pattern in accordance with vocal explanation, the students' eyes focus on the part being indicated by the pointer, and then the mutual relation between eyes and ears is greatly strengthened.

As to the size of a pointer, when a diagram is small an ordinary telescopic pointer (like an antenna of portable transistor radio) does well, but in the case of OHP screen or blackboard which have wide space, it is better to be thick (the diameter is 2 – 3 cm) and long (the length is more than 1 m). Standing by the screen rather far from it, move the pointer roundly and leisurely to indicate at the important part of the figure.

The author has a bitter memory in his junior high school days. He had carelessly forgot to do his homework, and so was hit on his shoulder with a bamboo pointer by his teacher. Nevertheless, a pointer is not for hitting pupils but for POINTING. Whoever may read this paper, the author recommend them to use pointers in their classrooms. It is sure your students' eyes will focus on what you want to show.

The author is afraid that you might think the pointer is an uninteresting and trifling thing. But to tell the truth, Dr. F. M. Dwyer had obtained his doctorate by presenting the thesis concerning with *The Effect of a Pointer*.

In educational technology there is no other instrument that is lower cost and more effective than a pointer. In short the proficient technique to use a pointer is the very core of AV technique.

Now, one of the effective way of pointing, especially relating to OHP, is to indicate at some important point in the OHP sheet set on OHP stage.

As to the pointer in this case, it should be better to be made of colored transparent sheet like as red – rather thicker sheet is suitable. Cut it into a long stripe shape, width is 1 cm, and sharpen at the end. Pointing with it is very good in effect.

According to Dr. F. M. Dwyer, in the way of pointing we should not limit only one method and not adhere to only one way. Sometimes point at OHP screen with a large pointer, sometimes point at a sheet on OHP stage with a colored-sheet pointer mentioned above, and sometimes come back to point at OHP screen again with our finger instead of pointer. In other words changing the ways one by one – by all possible means – to try to keep on the students' attention is very important.

Anyhow pointing is surely a great help for explanation as one of AV techniques.

7. Useware of OHP for showing experimental demonstration

OHP can be said as an useful instrument for showing performance of demonstration, though the projected picture becomes silhouette.

Especially when we want to explain about an electric or electronic circuits, it is very successful, for example, experimental devices are set up on a transparent acryl plate with several parts such as transparent electric meters, condensers, resistors, coils, etc.

8. Useware of OHP in hometask practice

OHP is not only for teachers' use but also for students' one. For example students can present their answers to the problems of hometask on OHP screen.

As to the method, hand a sheet of printed problems of hometask to each of your students in advance, two classes before the exercise, and indicate them to study it. And in the next class call for the challengers who will answer it next time. (If there is not enough volunteers, nominate someone who has not answered yet.) Then hand a blank transparent sheet to each challenger to write his answer on it. Finally on the day of exercise, projecting his prepared OHP pattern, he can explain his answer to the other students in the class.

The author can say at least three merits in this method. (1) We can save time. (2) Students can have practice not only how to solve a problem but also how to explain it. (3) It can prevent the students from just copying answers, which often happens in the case of blackboards.

The great effect is very like as "killing three birds with only one stone."

9. On the way of installing of AV equipments

It is because there is always a blackboard in a classroom that every teacher uses it. If we have to carry OHP or VTR to our classroom each time, our intention to utilize them might be weakened.

Whenever you want to use them, they should be ready set up there.

(A) Blackboard: Simple electric cleaner for blackboard erasers are on sale. To set up them in a classroom or corridor is very convenient.

(B) OHP: Every classroom has two sets of OHP which are on the carriage wagons and covered with cloths not to be dusty.

(C) Screen for OHP: The type which can be rolled up by spring is convenient. We can fix it on the upper end of blackboard with L-shape arms. When we need the screen, we simply pull down it and hook it up at the lower end of blackboard with string.

In fact, in Tokyo Inst. of Tech. almost every classroom had dark curtains, one or two screens and also OHPs in the system mentioned above. It depends on the efforts of our successive Presidents and Deans of the Faculty, and furthermore, we have a special person concentrately in charge of educational instruments. Pleasurably at the meetings of the societies the graduates of our school often get high praise for their way of presentations besides of the contents of their works. It can be said the steady and honest efforts by them in order to raise both of 'Education and Research' get such fruitful results.

We have nice phrases: that is, when a famous Alpinist was asked, "Why do you climb up mountains?", he answered "Because THERE ARE mountains."

So the author would like to present some similar phrases. If you ask a teacher "Why do you see blackboards?", he may answer "Because THERE ARE blackboards in my classroom."

When we use educational instruments such as OHP in our classroom, we have to mind not to be too much devoted to the instruments themselves. It is the most important point that teachers can use them easily and freely.

'Whenever, wherever and whoever' can use them easily is our motto.

10. Conclusion

The author has explained various modes of the Useware of OHP in the previous chapters. He, however, thinks they are not only techniques of how to use OHP effectively in your classrooms, but also something concerning with fundamental idea of AV techniques – that is the correlation between the informations received through ears and eyes, and how to use a pointer in order to make the correlation larger, etc.

To express in one sentence the thing mentioned above, it is that a teacher should always notice his students, and be the students' side – how do they feel and consider, what do they look at and ask about. Be sure how your students see your performance in your lecture.

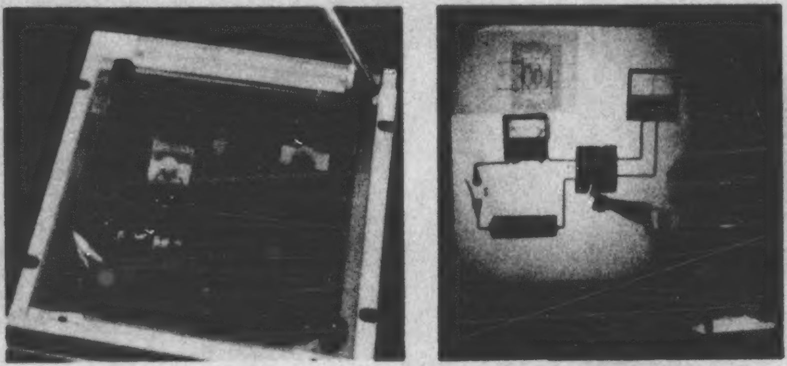


Fig. 3 (Chapter 7) An Example of the Shadow Demonstration

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SUMMARY OF THE DISCUSSIONS

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Introduction: Purposes

1. This was the first of a series of seminars to be held under a newly sponsored project of the OECD Centre for Educational Research and Innovation (CERI) focusing on cooperation and exchange of experience among a limited number of countries around the broad subject of innovative approaches to higher education. As defined by our Japanese hosts the theme of the Hiroshima Seminar was: "Innovations in Higher Education: Exchange of Experience and Ideas". Within this broad theme and purpose problems relating to the curriculum and to teaching methods were given particular prominence, in line with the central study theme of the major Hiroshima research project: "A Comparative Study on Innovations in Higher Education".

2. Both the structure and aims of the seminar were thus, purposefully, left fairly loose and the seminar took the form of essentially a warming up exercise, an appetizer, preparatory to subsequent developments under the CERI project and the Hiroshima comparative study. As it turned out, and very largely because of the quality of the participants, their motivation and their contributions (as the contributed papers that make up the bulk of this volume clearly indicate), the discussions at the seminar made it possible to clarify many of the key concepts underlying change in higher education and the relevance of the various issues as they apply to specific levels within the total post-secondary complex of educational provision. It would be fair to say, however, that in much of the discussion participants tended to equate higher education with universities and equivalent institutions, with only glancing reference to what goes on within the

large variety of other post-secondary institutions.

3. The material on which the discussions were based had clear limitations in terms of both substance and country coverage. It was of necessity illustrative rather than comprehensive, or even representative, Japanese experience, as may be expected, featuring more prominently and in more specific situations than that of other countries. Moreover, both the papers and the discussions brought out clearly the limitations which prevail in the similarities of the problems between countries – a reality which, at least to the Rapporteur, was indicative of the limitations that must be kept in mind concerning the value of comparative international perspectives in the study of national problems in the development of higher education.

4. Finally, much was said during the seminar which was of importance and interest; but there was also much of equal relevance and importance which was not said, and this was clearly brought out in the Rapporteur's summing up and is also taken up in the present summary. It was in fact agreed in the concluding session that these omissions should be included in the Rapporteur's summary so as to provide an objective starting point for future work on the Co-development project as a whole.

Structure of the discussions

5. The seminar was divided into three sessions – on Innovation, Curriculum Development and Teaching Methods. In actual fact, the sessions on Innovation and Curriculum overflowed into each other and the dominant theme was *innovation* itself – its definition; the need for it; its origins and application; its dissemination; its links to research and other support structures; the roles of the various agents involved; and prospects for its further development, particularly in the light of likely constraints on resources, changed public attitudes and the ingrained behaviour of higher education systems themselves.

Innovation: Definition, Needs and Pressures

6. There was little difficulty in arriving at a concensus on a simplified definition of innovation, which Professor Kitamura drew out of previous OECD work, as "purposeful change to achieve given objectives", or words to that effect. The main difficulty was seen to arise out of how objectives could be specified and what innovation was for and how it relates to broader change in society.

As underlined by Dr. Höllinger, drawing on the Austrian situation, there were now even more compelling reasons than in the past to extend the concept of innovation beyond the higher education system itself so as to relate it to social, economical scientific and technological change and ensure effective feedback and communication between the two. This was seen as one way by which developments in higher education could be brought closer to the realities of broader social and economic development and, therefore, of enhancing the credibility of higher education under prevailing conditions.

7. There was also no major disagreement as to the continuing need for innovation, particularly in the context of an education-intensive society, which called for greater flexibility, diversification, openness and more purposeful planning of the future directions of higher education. Economic needs, particularly the need for structural adjustments, were not very prominent in the participants' preoccupations; much stress, on the other hand was laid on innovation to enable the higher education system to respond to changing social and community needs and to those of its new, more diversified clientèle. The needs arising from new patterns in individual life-styles, increased leisure and cultural enrichment received equally scant attention.

8. The issue of how to provide incentives to encourage the system to be innovative was raised; but there was little discussion about its practical application other than general recognition that much could be achieved through closer scrutiny of cost and finance structures as key instruments both at the level of government action and that of the behaviour of institutions themselves. In this respect, Lennart Levin referred to the comprehensive study on costs in higher education currently under way in Sweden and Isao Amagi pointed out how the financial support system could be used to ensure the necessary impact of general government policy and guidelines which had recently been produced in Japan on the practices and attitudes of institutions. There was general recognition of the need to sensitize university professors as to the need for developing indigenous innovation as against that which tends to be imposed from the outside – which has by and large been the prevalent source of innovation so far. Change of teaching staff attitudes was a major preoccupation that surfaced frequently during the discussions.

9. The concensus on the need for innovation was backed by general recognition of the new pressures which militate for change. The main source of these

pressures was seen to be the massive growth of higher education and the learning needs of the new student population. In the public session, Patricia Cross gave an eloquent account of recent efforts in the United States to cope with differences in the style and pace of learning of those entering Community Colleges under the open access policy. In the debate it was underlined that the quality of the traditional students themselves is also changing and this called for the development of better guidance and orientation systems and better feedback between student needs and demands and the attitudes of National or State Governments and of professors. It was subsequently agreed that more recognition should have been given in the discussions of the wide range of changes and experimentation, mostly at grass-root level within institutions, which growth had made possible in the past; or indeed of the fact that the massive spread of education at all levels of the population had brought about secular changes in society and released forces and trends many of which are irreversible, even though they may not yet be clearly understood.

Where national differences begin to tell

10. Differences begin to appear when the specific nature of the above pressures and needs is analyzed within individual national contexts. It was agreed that these realities, though not explicitly brought out in the discussion, deserved to be underlined. These differences have mainly to do with the social and political philosophies and cultural traditions applying in different countries or groups of countries as well as with the different stages of the development of higher education systems themselves.

11. Three Groups of such differences were clearly discernible:

(i) between those countries, like Japan and the United States on the one hand, which had reached the stage of mass higher education enrolling over 30 per cent of the age-groups concerned, and the European countries on the other where enrolment ratios are considerably lower. By and large, in the former group the higher education system is more responsive to market mechanisms as against the more public service oriented approaches which prevail in the latter;

(ii) between the two mass systems themselves. As was made clear in the Patricia Cross presentation, a major source of concern in the U.S. stems from the open access syndrome and is directed at essentially remedial measures to remove learning difficulties for a category of students who do not exist in the Japanese system; much less so in European systems, where many of these problems are seen to be the concern of basic and secondary schooling. In this respect, Japan seems closer to European countries but:

(iii) clear differences were shown to exist between Japan and all other systems. Though there was an undertone of the emergence of declining confidence in Japan in the capacity of the country to sustain continued higher education development, the situation there is characterized by the absence of contraction of either numbers or resources. This alters fundamentally the ball game; and the differences become all the more telling when one refers to the contextual issues arising in Sweden as reflected in the first part of Lennart Levin's presentation. This probably explains why the pressures arising from the "accountability" issue were not adequately raised in the discussions, though again signs of them are also appearing in Japan. Moreover, the non-traditional student in the European and United States sense, which had been the focus of much of the concern for innovation in recent years, does not seem to be an important factor in Japan.

12. It is these differences which determine research and development priorities in different countries, as clearly reflected in the papers (particularly the contrasts between the Cross, Levin and Kitamura presentations) and how innovation is generated and disseminated, which dominated the discussion during the first session of the seminar.

13. There is no space for a detailed account of this discussion, which was for the most part inconclusive; but the flavour of it can be caught by reference to the main topics around which it took place – and those which it was agreed in the concluding session, should have been raised:

- the relative role of central initiatives as against grass-root developments, though, as indicated above, the latter was not adequately covered;
- problems revolving around decentralisation and devolution of power;
- legal and financial instruments;
- the entrenched position of academia;
- the role of the students themselves – particularly important because many people to-day tended to forget that May 1968 did, in fact,

happen;

- general problems of dissemination.

14. Again, it was agreed in the concluding session that a number of other significant issues could have been raised. There needs to be discussion, for example, of the impact of the present employment situation on the demand for higher education, on the structure and contents of studies and on changes in the pecking order of higher education institutions and programmes in the preferences of students; on the sharpening of conflict between the various objectives of higher education, the present situation tending to re-inforce its vocational and more instrumentalist roles. Equally, attention should be given to the possibility of accepting ad hoc innovations at the local level, not necessarily generalisable, which might provide the main avenue for the future in the face of no additional resources and no growth; and to the need of encouraging local initiatives and increased institutional autonomy to counteract the inevitably centrifugal trends which arise from the current accent on accountability.

The Universities as the hub

15. Many of the above issues revolve around the position of universities and this lay behind most of the pre-occupations in Session Two which, although devoted to the curriculum, dealt in actual fact with institutions. The great absentee in this discussion was explicit recognition of the range of problems which arise from the diversification of the structures of higher education which was the hallmark of innovation in the sixties and early seventies. There was implicit recognition, however, of the limitations, and frustrations, of any policy designed to by-pass the universities, in view of their entrenched position as the keepers of academic standards. Frequent references were made to "academic drift" and "the pull of the universities" and specific examples were quoted of how this was clearly reflected in validation standards and procedures that dominated the entire system.

16. Much of the United Kingdom experience around the Polytechnics epic, both in Sir Norman Lindop's paper and Edward Houghton's presentation, could be seen in this light. There was full appreciation of the impressive success of the Polytechnics as a major innovation catering for a new student population – in terms of their distribution by branch and field of study, part-time or full-time, social and geographical origins, academic and employment backgrounds

and age composition. An essential factor in this success was the introduction of new courses, and the development of curricula to match them. This revolved around the key concept of validation by the CNAA by reference to university standards, and the dominance of the degree remained, therefore, unshaken.

17. The frustrations came out clearly in Höllinger's presentation of the Austrian situation and his cri de coeur about the need to break up the introspectiveness of the university – dominated higher education system, which tends to reinforce its isolation from the rest of society. Stressing the need not to equate "scientific" with "innovative", he made a strong plea, shared by other participants, for universities to establish closer links to practical life and applications and for a new system of communication to be established between universities and the community as a major source for curriculum innovation. If anything, the Austrian case was a clear example of a deliberate choice, partly generated by legal constraints, not to diversify the institutional map of higher education and the problems which arose by the apparent lack of will on the part of universities to dilute their "scientifism" in the interests of new social and economic needs.

18. Institutional issues were also evident in the innovative case-study of the university of Tsukuba (Japan) as presented by Fujio Ikado. This again represented a deliberate attempt, through a new institution, to break up the traditional chair/department axis around which the universities are articulated and to strive for academic integration in response to the diversity of needs as well as to establish a more functional interdependence between teaching and research. It was an open question as to whether this was a valid example of an inter-disciplinary breakthrough in universities. Tsukuba is developing essentially as a graduate school of a prestigious kind. As such, it will join the ranks of the relatively small number of other such institutions which, both in Japan and elsewhere, occupy a dominant position on the peak of institutional excellence. In any case, it was clear that the reference to the "diversity of needs" made above applied to educationally defined considerations rather than to broader social needs or multi-disciplinary problems as such. At the end of it all, participants were left to ponder over the intriguing thought, formulated earlier at the OECD/CERI Conference on Higher Education/Community Relations, that "Society has problems; Universities have departments" !

Educational technology breakthrough?

19. Session Three of the seminar was allocated to teaching methods; in practice the discussion focussed around developments in educational technology, brilliantly illuminated by the Japanese experience presented in the papers by Takashi Sakamoto and Kunihiro Suetake. Much of what Patricia Cross had said in her public address – in terms of mastery learning, self-pacing devices, personalized systems of instruction, the diagnosis of differences in cognitive styles and developments in computer managed instruction – was also relevant. But this applied primarily to students with learning difficulties; and questions of costs and motivations were not really discussed. Nor was it to be assumed that the enhancing of the learning capacity of individual students was equivalent to the total educative purposes for which higher institutions exist.

20. Japanese interest in educational technology was demonstrated by the rapidly increasing resources which government is now making available for this purpose, the proliferation of Educational Technology Centres within universities (around thirty of them so far) and the variety of experiments in progress, none of which has yet reached the stage of widespread practical application. These projects range from systematic approaches to design, implementation and evaluation as part of a total teaching/learning and related support systems to plans for a University of the Air, nationwide data bank for research information and the promotion of the use of audio-visual aids, not be confused with computer managed and computer assisted instruction systems.

21. Advances in micro-electronics, the miniaturization of equipment and the sharp fall in costs, were all seen as holding out a significant promise for an educational technology breakthrough. The weakness was seen to continue to reside in: (a) the slow rate in the development of software and the dangers that may arise from initiatives taken by private industry, with profit motivations, in this area; (b) the attitude of teachers and their hesitations in having resort to technological devices; (c) a number of practical problems in the use of highly sophisticated equipment, including the availability of suitably qualified technicians to handle such problems. Participants enjoyed a highly instructive and, at the same time, entertaining demonstration by Suetake on the variety of imaginative ways in which the overhead projector can be used to consolidate learning in very complicated mathematical concepts; but were also impressed by Edward Houghton's more simple demonstration of the same projector as a dynamic device to

replace the blackboard without much elaborate preparation or sophisticated material. But perhaps the most reassuring image was that of a control room, demonstrated by Sakamoto, which reminded us all how different the prospects for 1984 are to the spectre of that year that had been projected earlier.

Concluding remarks

22. The substance of the Hiroshima Seminar will be found in the papers that were contributed. This summary is no more than the rapporteur's impressions of the range of issues that the seminar raised, even though it was agreed that some of them may not have been adequately discussed at the seminar. As such, it may prove useful as a curtain lifter and a point for background reference for the continuing debate among Member countries on specific aspects of innovation in higher education.

PART II

Seminar on Innovation in Higher Education

PROGRAM FOR THE SEMINAR
on
Innovations in Higher Education

Sponsoring institute : Hiroshima University

Planning and executive organ : Research Institute for Higher Education, Hiroshima University

Topics : Innovations in Higher Education – In Comparative Perspective

Period : 10–11, March 1981

Places : Hiroshima (Hiroshima University) and
Tokyo (National Educational Hall)

Participants : Japanese Participants 20 persons
Non-Japanese Participants 4 persons

– Schedule –

March 10 (Tuesday)

12:00 Visit to Hiroshima University (President and Research Institute for Higher Education)

14:30 *Public Lecture*
Chairman : Mr. K. Inaga
Lecturer : Mr. Ladislav Cerych (France)

March 11 (Wednesday) Seminar

10:00–12:30 *Session I* : *Asian Experiences*
Chairman : Mr. T. Umakoshi (Japan)
Reporters : Mr. K. Kitamura (Japan)
Mr. W. Hong (Korea)

14:30–17:00 *Session II* : *American Experiences*
Chairman : Mr. K. Kitamura (Japan)
Reporters : Mrs. J. Ruyle (U.S.A.)
Mr. F. Kintzer (U.S.A.)

18:00 Reception

List of Participants

(Alphabetical Order)

Invited Guest Speakers

Cerych, Ladislav	Director, Institute of Education of the European Cultural Foundation, Paris. FRANCE
Hong, Woong Sun	President, Korean Educational Development Institute. KOREA
Kintzer, Frederick	Professor, Graduate School of Education University of California, Los Angeles. U.S.A.
Ruyle, Janet	Assistant Director, Center for Studies in Higher Education, University of California, Berkeley. U.S.A.

Research Associates of the R.I.H.E.

Ikeda, Hideo	Professor, Hiroshima University
Mori, Kazuhiro	Associate Professor, Hiroshima University
Ninomiya, Akira	Associate Professor, Hiroshima University
Shimbori, Michiya	Professor, Hiroshima University
Tomoda, Yasumasa	Associate Professor, Osaka University

Full-time Staff of the R.I.H.E.

Inaga, Keiji	Director
Seki, Masao	Professor
Kitamura, Kazuyuki	Professor
Umakoshi, Toru	Associate Professor
Yano, Masakazu	Associate Professor
Kawauchi, Tsutomu	Research Assistant
Yamasaki, Hirotoshi	Research Assistant
Matsunaga, Yuji	Research Assistant

Observers

FACTORS OF ACHIEVEMENT AND FAILURE IN EUROPEAN HIGHER EDUCATION REFORMS

LADISLAV CERYCH
Director
Institute of Education
The European Cultural Foundation
Paris, France

Some 14 years ago Eric ASBY wrote that European universities were undergoing a profound mutation, comparable only to what happened in the first part of the 19th century. At that time, completely new patterns in higher education emerged which in the subsequent 100 to 150 years became guiding models for university organisation and contents in most of the world. Similarly, it could be argued that the 1960s saw not only a quantitative expansion of higher education but also radical qualitative and structural changes which could eventually lead to new models and a new stage in the development of higher education in Europe and elsewhere. A few years later, this mutation theory 1) was superseded by the concept or theory of "transition from elite to mass higher education" 2) which influenced the literature on the subject for quite a number of years.

There was a lot to be said in favour of both these interpretations; in several European countries, if not in the majority of them, numerous new universities were created not only in view of coping with increased student numbers but also with the purpose of serving new functions of higher education, providing new types of training and organized differently than the established universities. Completely new types of institutions with a more vocationally-oriented and shorter duration of education were being set up and some key rules, in particular those concerning access to higher education, were modified. In few count-

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1) Which to our knowledge was never presented or elaborated as such either by ASBY or other scholars.

2) See in particular Martin TROW: "Reflexions on the Transition from Mass to Universal Higher Education", in *Daedalus*, Winter, 1970 and OECD: *Towards New Structures of Post-Secondary Education*, Paris, 1971.

ries comprehensive reforms of the higher education system as a whole were even attempted.

When we look at the outcome of these new policies today, it is tempting to conclude that most of them have resulted in much less change than was originally envisaged.

Examples abound in virtually all European countries. For instance most of the universities created in Germany in the 1960s, like Konstanz, Bochum and Bielefeld, instead of becoming new models for the organization, content and methods of the country's higher education, are now, clearly, part of the university establishment. This situation has been largely paralleled also by the nine new universities founded at the same time in the United Kingdom. Furthermore, new institutional patterns set up to provide alternatives to traditional higher education, such as the Polytechnics in Great Britain or even the so-called 'short cycle' establishments like the Norwegian Regional Colleges or the French *Instituts Universitaires de Technologie* (IUTs), either tended increasingly to resemble the traditional university model or to fall short of their forecast enrolment.

In regard to proposed or adopted global reforms, the situation is much the same and possibly worse. The German *Gesamthochschule* (comprehensive university), once expected to become the new general organising principle for the whole of German higher education, has only partially materialised in no more than two of the eleven *Länder*. Meanwhile, in France, the three main goals of the well-known *Loi d'orientation* of 1968 namely, multidisciplinary teaching, student participation and institutional autonomy have been achieved only to a very limited degree and, some might say, not at all.

Policies concerning specific aspects of higher education have not fared much better. Changes in arrangements for admission aimed at the widening of university access for students from underprivileged social strata have very rarely resulted in a significant increase in the proportion of these students in total enrolments, least of all those for regular full-degree programmes: this applies even to Eastern European countries, to the very radical Swedish 25/5 admissions scheme and, partially at least, to the British Open University.

It is not the purpose of this paper to assess whether, in the light of these developments, the mutation and transition theories mentioned at the outset have proved to be invalid but merely to draw attention to a fundamental and, we would argue, neglected question both among researchers and educational policy makers; what can explain the – at the first sight – rather modest outcomes of the numerous higher education reforms of the 1960s and early 70s, what lesson can we learn from their shortcomings? Or, in more technical terms, what key factors in the implementation processes of the reforms can explain both achievements and non achievements of the original goals?

The factors or forces which affect the outcomes of a reform are of course numerous and, moreover, they interrelate with each other so that no single factor can explain the actual positive or negative results of a new policy. On the basis of several in-depth studies of specific reforms in European higher education[1] and of more theoretical work in the area of policy implementation analysis, we now propose to examine the role of four such factors:

a) the nature and formulation of reform goals;
b) the degree of inconsistency of the proposed reform goals with established rules of the system;
c) the changing environment; and
d) the behaviour – support and resistance – of groups and individuals affected by the reforms.

NATURE AND FORMULATION OF REFORM GOALS

A closer look at most of the recent reforms in European higher education confirms a well-known point: it is difficult to separate implementation from the process of policy design. Moreover, in many instances, the formulation of objectives has taken place in several stages, with priorities often changing from one stage to the next. For example, although the main initial emphasis in the preparation of the Swedish 25/5 Scheme was on economic considerations, including education as an investment and the demand for qualified manpower, the need to bridge the generation gap later became the prime objective, only to be displaced subsequently by social equalisation. Also, very often, the officially stated objectives are very ambiguous. Such ambiguity may be deliberate, either because more precise definition would have precluded the agreement of all interested parties (thus lack of precision is the price paid for essential political consensus), or because the legislator (the government) preferred to leave the detailed determination of goals to various types of planning or steering committees, set up as a first step in the implementation process.

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[1] These studies were undertaken by researchers in eight European countries within the framework of a project on "Implementation of higher education reforms" conducted by the Institute of Education of the European Cultural Foundation in Paris. Most of the studies, as well as a general comparative report, will be published in the course of 1981.

Nor does a single precise goal guarantee better implementation. The Polish preferential point system had such a clear single aim: to increase the proportion of students from working class and peasant families in university enrolments. Yet, it failed to a large degree. Another important aspect of the higher educational reforms is the fact that many have incorporated several seemingly conflicting goals.

This point is well illustrated by the Norwegian Regional Colleges set up in 1969, two of the most important declared aims of which were regional relevance, and the provision of a new type of higher education different from existing university studies mainly in regard to its shorter duration and vocational orientation. However, almost simultaneously, other virtually contradictory objectives were also implicitly or explicitly adopted. According to these, the Regional Colleges were supposed to lessen pressure on the universities while providing an education qualifying some students for subsequent university study, and also to respond to national needs, recruiting students and teachers from throughout the country. Unavoidably, the implementation process was strongly influenced by conflicts inherent in this goal structure, as well as by shifts of emphasis among different inconsistent aims. Yet it might be argued that conflicting aims were inevitable for the same reason as ambiguity, in that it would otherwise have been difficult or impossible to reach a consensus on the proposed policy.

Finally, in many cases, the implementation of reforms resulted in the achieving of unexpected and unintended goals. The Swedish 25/5 Scheme, for instance, did not increase substantially the proportion of regular full degree students from lower classes, but it did greatly contribute to increasing the number of students entering universities with a view to taking no more than a single course, thereby imparting to Swedish higher education an extension function of a kind generally associated with British and American universities.

Conclusion: ambiguity and multiplicity of often conflicting goals are in most cases unavoidable. This also unavoidably leaves the door open to alternative developments in the implementation process and makes it very often impossible to speak of a straightforward success or failure of a reform. Of vital importance is the question "which goals and whose?" since, clearly, what is successful in one respect might be undesirable in another, in view of the multiple objectives generated around every reform, both before and after its formal adoption.

CONSISTENCY AND INCONSISTENCY OF NEW POLICIES WITH RESPECT TO PREVAILING VALUES AND BEHAVIOURS

Clearly, the relative difficulty (or ease) of implementing higher education reforms depends largely on the degree of consistency or inconsistency of a given reform with rules and values already prevailing in the system. The three following examples illustrate this point:

a) The goal of interdisciplinary teaching and research which some of the new institutions set themselves could never be fully implemented because, in the system as a whole, academic recognition and promotion continued to be based largely on recognition acquired within traditional disciplines,

b) New institutions expected to be of special relevance in making an important contribution to the economic and social development of their respective regions, continually had to face the problem of how to reconcile this aim with the legitimate desire of their members for national and international recognition.

c) In contrast, the strong continuous emphasis attached by the British Open University to following traditional university standards unquestionably facilitated the acceptance of this institution within the national academic community.

Of course, every reform introduces, almost by definition, rules and values which are somewhat inconsistent with the established order; but it can be argued that the greater the inconsistency of a reform with the existing system, the more important it becomes to introduce appropriate rewards and sanctions helping to bridge the incompatibility. Yet, obvious though this appears, the practice has invariably been disregarded.

However, experience also shows that if the content of an innovative reform is too small, this might lead to non-implementation. This happened in the case of the German *Gesamthochschule*, when policy makers proposed two alternatives for the carrying through of the main reform idea of bringing together under one roof hitherto separated and different types of German higher education. The alternatives were integration of these different types (curricular, staff, student body, etc.), or just closer co-operation between them. Only the first formula was adopted, and that in a limited number of cases; the second alternative was not carried through at all, presumably because it was not considered worthwhile.

Obviously inconsistency with prevailing values and behaviour will pose greater or smaller problems according to the number of individuals and institutions affected by the reform: the system as a whole, a group of institutions, a single university or only part of it. Moreover for each of these categories, one can distinguish between reforms concerning only one aspect of higher education (such as access conditions) or more complete reforms dealing simultaneously with such topics as access, curriculum content, organization, decision making, etc.

Conclusion: Generally speaking and as could be expected, reforms which are highly inconsistent with respect to prevailing rules, and concern simultaneously several aspects of the system are the most difficult to implement and those requiring limited change in a limited set of rules within a single institution the easiest.

Two examples of these extremes are – one – the case of the German *Gesamthochschule* (comprehensive university) in which an attempt was made to change the entire structure, organization and even contents of the system, and –two– the case of the British Open University, which implied a major innovation in a single institution with respect to its access and delivery aspects only. The first was an almost complete failure, the second appears to be very successful.

In any case, it seems that, both at system and institutional levels, inconsistency (imcompatibility) of rules in one area (e.g. access) must, if implementation is to be successful, be compensated by strict adherence to prevailing standards in other areas (e.g. academic requirements).

THE CHANGING ENVIRONMENT

All the reforms discussed here were adopted in the second half of the 1960s or early 1970s, during the so-called 'golden age of higher education', when new policies were not infrequently fuelled by 'the spirit of May 1968'. However, the implementation of the same policies took place under completely different economic, political and social conditions. It cannot be asserted that the impact of the new environment has always been detrimental to the achievement of initially established goals. Indeed, in some cases, the apparent worsening of a situation has further encouraged a policy which, in the years of euphoria, could not get off the ground. For example, the French IUTs gained noticeably in prestige and popularity in the second half of the 1970s, while the Swedish 25/5 Scheme has compensated for the decline in traditional enrolments enabling many university departments to maintain an unchanged course capacity and teaching staff and, consequently, making universities supportive of the scheme.

In one respect, the changed conditions do not seem to have had a major influence. The lack of financial resources (compared to the 1960s) has never appeared a decisive factor in failure to achieve or implement certain objectives. Similarly, inadequate or totally erroneous forecasts of policy costs have not necessarily inhibited implementation. When, in 1968, the Norwegian Parliament decided to create the University of Tromsø, it approved an estimated total investment cost for the project of some 200 million Kroner (at constant prices) for the pre-1980 period and, although the real cost has in fact amounted to some 500 million Kroner, the enormous overspending has never threatened the university's future.

But change in the socio-economic environment has almost always had a decisive effect, in that it has significantly affected the priority given to one or another of several objectives in a given policy. Sometimes, this choice was deliberate, but more often it resulted from quasi spontaneous pressures and led to greater emphasis on more traditional goals.

BEHAVIOUR (SUPPORT AND RESISTANCE) OF GROUPS AFFECTED BY REFORMS

In a sense, most of the other forces are expressed through the behaviour of participating groups and, in particular, their support or resistance to the reforms introduced. Among these groups, teachers and students are usually the most important. Lately, the direct influence of students has certainly decreased, but it continues in an indirect way. Although students are taking part in the formal decision-making process much less than was expected in the aftermath of 1968, they are increasingly 'voting with their feet', a vote which clearly indicates the attractiveness or otherwise of a new institution or educational pattern.

However, the implementation of reform is also very much affected by outside groups, including teachers and students in other institutions of higher education not directly affected by the proposed change. Their perception of it as a potential advantage or threat to their established positions is often decisive in determining the behaviour of those who are directly involved. The misfortunes of the German *Gesamthochschulen* have been largely due to such relatively external reactions.

Also significant is the role of certain groups situated completely outside the higher education system and, in particular, that of the employers (or potential employers) of graduates produced by the new institutions or educational pattern. The improved image of the French IUTs or of certain courses at the University of Tromsø resulted at least partly from a favourable attitude on the part of employers. On the contrary, some internal groups, even when directly affected by the reform, do not seem to have had a decisive impact: for example, in places where new institutions were supposed to contribute to local or regional development, their own prestige was only rarely influenced by the support of the local or regional authorities.

Of interest are also the 'compensatory strategies' adopted by groups which feel threatened by a particular reform if, for one reason or another, it appears that it cannot be resisted or blocked, as in the case of the Polish preferential point system (in favour of working class and peasant children). One of the explanations for the limited increase in the proportion of students from less privileged strata, a few years after the introduction of the scheme, was the special effect made by the children and families of the intelligentsia to overcome the relative disadvantage to which they were exposed. Special courses, private lessons, and similar forms of study became, for many, a means of improving examination marks and thereby compensating for the preferential points attributed to those from working class and peasant families.

It is trivial to say that a reform succeeds when there is enough support for it and vice-versa. But this only poses the question: how should support be mobilized and resistance overcome? Obviously, in most cases, by an adequate system of rewards and sanctions. These do not need – and often cannot be – of financial nature. Promotion, recognition and similar rewards might be equally important. It is surprising how often this rather simple principle has been disregarded.

And we have also found that in certain instances absence of support or even latest opposition does not prevent compliance. Usually this is so when all those concerned believe that the new policy will be implemented anyhow, i.e. when they believe that there is a strong political will behind the reform which will make resistance useless. It is for this very reason that there was no open resistance (even by very conservative groups) to the German *Gesamthochschule* for a long time.

THE ROLE OF THEORY AND EVALUATION

Naturally, the four factors discussed above are not alone in influencing the implementation process: many others can be mentioned and analysed, including bureaucratic procedures, the degree of support from central administration or government, the personality and commitment of successive leaders and staff responsible for implementation, support (or lack of it) from the mass media, and so on.

A brief remark with respect to one of these factors, namely the role of leaders or strong personalities committed to the reform: in general this role – as all implementation literature and common sense or practical experience show – is crucial[1]. Such persons existed in the case of most of the reforms concerning the setting up of new universities, much less in reforms related to the system as a chole. Usually also their role was limited to policy formulation and adoption and possibly to the very early phase of the implementation. We might even wonder whether a number of difficulties, distortions, and conflicts which arose later could not have been overcome had real "fixers" been there long enough. Their absence might be explained by a certain climate surrounding European higher education after the early 70s, which did not attract strong personalities as in the past.

There are two other strategically important factors in the implementation of any reform. First, the nature of an implicit or explicit theory on the basis of which the proposed goals are to be attained and secondly, evaluation of the reform outcomes and its use in further implementation.

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[1] Eugène BARDACH uses the term "fixer", meaning thereby a person who monitors the implementation process, intervenes whenever necessary with authorities and agencies which might block or advance this process and helps to "iron out" major difficulties ("The Implementation Game", Cambridge, Mass., 1977).

It is surprising how many of the reforms (if not most of them) have been based on assumptions which simply did not meet any criteria of already existing knowledge. This for example applies to reforms aiming at social equalization. Several of them have merely offered favourable conditions of access to higher education to hitherto under-privileged groups, without providing any special support measures. Yet, it has been known for several years that mere formal access equalization has a limited effect and that in any case it does not lead to social equality on the educational output (result) side.

Similarly, it should have been clear at the outset that the goal of interdisciplinary teaching and research – however necessary they might be – could be pursued with some chance of success only if, among other things, those most directly concerned (the teachers and researchers) could be safe from sanctions, that is if their status, career possibilities and the like could be protected against being blocked by their commitment to the new goal. Another example of an often neglected but obvious interrelation is the case of new types of higher education degrees and contents for which there were insufficient outlets because potential employers of the respective graduates were not stimulated to change their recruitment procedures.

Expost it can of course almost always be said that the non-achievement of a particular reform goal is due to erroneous assumptions, and thus to a wrong theory. But clearly not everything can be foreseen in advance. Constraints emerge which could not have been predicted, individual and group behaviour changes often on non-rational grounds.

In theory, it is always stressed that evaluation should be an integral part of the reform implementation process. In practice, even when it exists, evaluation is rarely used as a means towards correcting errors, identifying unforseen constraints and reformulating implementation strategies or, if necessary, even goals. This has not happened even in countries such as Sweden, where "evaluation consciousness" is relatively developed. Yet, many of the shortcoming and their reasons could have been relatively early and easily identified if the first outcomes of a reform had been assessed and analyzed: the fact that equalization policies benefitted primarily the already relatively privileged groups and not the main target population, that certain incentives were insufficient, that new behaviour emerged following change socio-economic conditions, etc.

The interesting question here is why was evaluation so little used. Aaron WILDAVSKY gives a simple answer "Organizations do not want to rock the boat" and "resistance to evaluation is part of self-protection.... scepticism clashes with dogma in organizations as well as in thought" 1). Our experience and analysis of the implementation of many of the recent reforms in European higher education fully confirms this interpretation 2).

It should by now be clear that the implementation of all higher education reforms of the late 1960s and early 1970s has been much more complex than was imagined by most of their pioneers. Indeed, the very nature of this process makes it pointless to speak of success or failure with regard to these reforms. In fact, they have always been a mixture of both, a mixture of achieved, partially achieved and unachieved goals, of intended, unintended, sometimes positive, and sometimes negative, results. But this, we would argue, is the essence of the implementation of any policy. And implementation can only rarely (and probably never in higher education) be programmed but only guided. It is, in the words of LINDBLOM and in the general nature of policy making, "a process of successive approximations to some desired objectives in which what is desired itself continues to change under reconsideration"3).

Better guidance of this process is possible and urgently needed. One of its bases is certainly a better use of evaluation and implementation analysis in general. Their purpose, however, must not be to introduce more controls but to facilitate the successive approximations mentioned by LINDBLOM or, in MAJONE G. and WILDAVSKY's terms, to facilitate "implementation as evolution" 4).

It might be that the term "implementation" is not a very good one, that "policy analysis" or another, even simpler term would suffice. But whatever the terms, the important point is that we become more interested not only

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1) Aaron WILDAVSKY. *Speaking Truth to Power*, Little, Brown & Co., Boston, 1979, pp. 5–6.

2) There are of course exceptions. One of them, a very rare one, is probably the case of the British Open University which, we would argue, not by coincidence, is also among the most successful policies in terms of its original goal achievement.

3) Charles E. LINDBLOM. "The Science of Muddling Through", in *Public Administrative Review*, Vol. XIX, No. 2, Chicago, 1959.

4) G. MAJONE, A. WILDAVSKY. "Implementation as Evolution", in *Policy Studies Review-Annual*, Sage, 1978.

in goals but also in how and why they are, or are not, can and cannot be, carried through.

INNOVATIVE TEACHING IN HIGHER EDUCATION

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Introduction

Colleges and universities avow themselves to be on the rapidly developing frontiers of science and technology. It is axiomatic that they are the cradle of social innovation and development.

In the rapid torrent of changes sweeping all segments of human living, however, higher education institutions have drawn criticism for its resistance to change in one aspect – the delivery system. As a matter of fact, this area has remained in backwaters amidst the main stream of advancement in other areas, despite the fact that it constitutes a core component of higher education which must be brought into focus in any effort to innovate higher education.

The higher education institution deserves credit for having contributed to the improvement of education at lower levels by searching for new ways of teaching and new curriculum, but it failed to spark its own innovative fire. This irony can be aptly described by a Korean adage' "a monk can not get his own hair trimmed," for Buddhist monks used to get their hair cut by mutual aid.

True, the more elementary a course and the younger its students, the more serious must be its pedagogical aim of forming the intellectual powers of those whom it serves (Bruner, 1966). Does this account for the apathy given to the pedagogical concern in higher education? In considering a course of study, there are two aspects to be considered. One is concerned with what is to be taught, which is expressed in the content of course. On the other side of the coin, one must consider how to challenge and shape the curiosity of students and this has been given least attention – particularly in higher education. Indeed, neither can be accomplished without the other. Availing myself of this occasion, I wish to highlight the pedagogical concern in this presentation, because it actually constitutes the major obstacle to the innovation of higher education.

The question of "what teaching means in college" naturally leads us to consider the basic goals of higher education. This argument is understood by the fact that there is a wide disparity in the view of teaching between professors who regard the role of higher education as generating knowledge and those holding it responsible for cultivating the desirable character of human being.

Nowadays, many gravitate toward the notion that the goal of higher education is to generate knowledge, ardently advocating increased financial support for research and development activities directed to it. By contrast, there is a view that stresses the role of higher education in cultivating the desirable character of human being, citizenship and leadership quality. This view necessarily attaches no less importance to teaching than research role of professors.

Hence, how to think of the role of teaching is an important factor to be considered by professors, for it determines, to a great extent, the efficacy of teaching and learning. Many who teach at college find themselves at a crossroad which requires resolution as to whether to simply impart knowledge or to facilitate the learning of students. Those who are much experienced in teaching come to argue that knowledge acquired for its own sake is something to be forgotten and that what is unforgettable is the very ability of students to acquire knowledge through analysis and application. The question of "which way of teaching is most effective" defies easy answer, for it involves a thoughtful consideration of what teaching really means in college. Answering this question is further complicated by the difficulty of defining a set of criteria that help determine the efficacy of teaching and this difficulty arises from the vagaries of teaching style. Many teachers favor Socrates' teaching of 'question-answer,' whereas the others find it cumbersome and ineffective. But many of them using this method command respect of students for the excellency of their teaching. Teaching is an art exclusively dependent on personal style – something that does not produce the same effect by simply emulating it.

Innovative Teaching

The issue of teaching, however, is too important to be left to the discretion of individual professors. As a response to the growing concern for the improvement of teaching in college, the Liberal Arts College of Yonsei University, of which I was Dean, hosted a seminar in October 1979, with the purpose of improving teaching methods of the college. What follows is the summary of discussions on the aforesaid theme.

Lecture: Lecture is the most traditional type characterized by one-sided communication. The premise that the teacher is more mature and much more familiar with the subject matter leads him to assume the bulk of the responsibility in carrying out learning activities of the classroom. After all the arguments of teacher domination are carefully laid out, the fact remains that, at its best, it does not do the job of turning out self-directed people who can deal with feelings as well as facts (Gorman, 1974).

In the context of teaching pattern in college, however, lecture has much latitude for deviation from the standard way. To cite the example of a history course entitled "Introduction to Western Civilization," a professor gave a two-hour lecture per week after which the learning group was divided into 20 groups – each accommodating 30 students – to have group discussions which are facilitated by an instructor (Cornell University Syllabus, 1963). In this case, the lecture assumes introductory role touching on the general content, with details left to be dealt with in group discussion. An alternative is for an instructor to introduce literatures and publications relevant to the topic and conduct iedntification quiz on the publications introduced in the preceding week. This session is followed by professor's lecture which takes the form of "question-answer."

In this connection, mention needs to be made of the subjective value of a professor which expresses itself in the focus of attention in organizing the content of lecture. Even under the same topic, content varies from person to person. What is covered in the lecture is a matter of choice by the professor, and it is especially true in social sciences and humanities. This argument suggests the necessity of providing for an extensive reading of not only textbooks but other relevant reading materials to help students from an objective conceptual framework. In other words, this suggestion may well be viewed to minimize the effect of a professor's subjective value on the content of a course.

The principle derived here is that lecture must provide for an assortment of reading assignments and tests. The effect of reading assignments largely hinges on the methods of testing. The test must be such that not only provides a balanced coverage of lecture and reading assignments but stimulates the momentum of students for seeking relevant materials as far as their vision reaches. In managing such a lecture, teaching assistants are essential.

Lecture and Readings: This method is an alternation of lecture and reading that are inter-related. In the aforementioned case, reading takes the form of home assignment, whose result is subject to discussion. Whereas this method gives regular class hours to reading relevant materials before or after a lecture is given. The amount of time given to the reading may be determined on the basis of the expected degree to which it is supplementary to the lecture. While the reading is mainly aimed to facilitate or deepen the understanding of concepts dealt with in a lecture, it serves the concomitant purposes of enhancing the capability of reading comprehension as well as getting students acquainted with the style of paper-writing. This case is necessitated by students who lack the ability to comprehend relevant materials by reading for themselves. Reading may follow the completion of each topic or is given one class hour per week. Or it may be incorporated into lecture, taking a bite out of its time. Materials to be read are mostly in foreign language but they are not limited to foreign versions. A publication or material worthwhile being thoroughly understood by students is recommended for this approach.

The major weakness of this method is the sluggish progress of a course and there are many occasions where the course is not completed by the termination of a semester. Remedial measures can be considered in various forms. When it comes to a publication in foreign version, the general tendency of translating word for word is by no means a desirable approach. Some ways of economizing time must be sought. In the first place, it requires the prioritizing of concepts through which to sort out key concepts for intensive treatment in classhour, while those of secondary importance are left to workshop or practicum managed by teaching assistants. This process also leaves ample room for reading assignments which enable students to bring questionable points into focus in classroom instruction. The principle is that professors and students share responsibility for the planning, carrying out and evaluating of the learning experience.

Lecture and Discussion: The combination of lecture and discussion is in a way to contrast the different patterns of communication inherent in the two. While the lecture is the common pattern of communication – from the teacher to students, the discussion free from teacher domination engages the largest possible number of students within a group in communication. It brings out maximum participation and extends the communication pattern so that student speaks to student without having to plug into the teacher switchboard (Gorman, 1974). Because teachers are used to playing the role of switchboard, a change in the pattern of communication will come about only through a change in teacher behaviour. Such a change should move from directive, dominating, dependency-creating leadership toward nondirective and partnership participation.

This method allows the concepts earlier dealt with in a lecture to be internalized through a free exchange of feelings and ideas among group members. It commends itself as an appropriate way to develop creative thinking and logical reasoning and assist in the internalization of values.

The Liberal Arts College of Yonsei University adopted this method in social science for the spring semester of 1976. To enhance the effect of its implementation, the following arrangements were made.

a. The learning group was divided into several sub-groups – each consisting of 15 students or below.

b. Discussion sessions were scheduled in such a flexible way as not to interrupt the classhour of lecture.

c. A three-hour course per week assigned two hours to lecture and one hour to discussion. Two-thirds of total discussions were attended by professors, the remaining managed by teaching assistants.

d. Written guideline was handed out to group members to inform them of specific topics to be discussed, emphasis, procedure, and the role of moderator.

e. The moderators were selected among students who had the potential of creating a climate conducive to active participation of students, particularly those who were least talkative.

f. Reading assignments were given a week ahead so that they might be fully prepared for the discussion scheduled.

g. The degree of participation in discussion entered into consideration as part of student achievement, together with interim and term examinations.

This method encountered some problems in the beginning because students' learning habit of dependency formed by the lecture-bound communication prejudiced them against it. They were of the opinion that the method lacked discipline and a systematic treatment of content. Some complained about the repetitious cycling of a beaten track, hardly providing exposure to new things.

But a survey on their opinions after its trial over a semester produced quite different results. It was through this process that they realized that learning is not merely an acquisition of information but a process to be experienced at one's initiative. As the experience with learning through discussion accumulated, students showed more active participation.

Whether students have done reading assignments or not is the key factor that determines the effect of learning, since it forms the basis for having one's opinions heard by others as well as listening to theirs. Each member of the group is an integral part of group interaction and engaging in a full swing of group interaction provides first-hand experience of learning which increases the transferability of newly acquired knowledge. The discussion session also takes on significance as a mechanism for providing feedback regarding earlier instructions.

It is not always that the approach of lecture and discussion is validly applicable to all areas of learning. It is one of numerous methods that can be adopted. But what is apparent from its demonstrated effect is that it deserves greater effort to expand the scope of its application in college education.

Seminar: Seminar is another way of group-centered approach in the classroom, because it takes recourse to inter-personal communication within a group for learning. Looking into the substance of a group suggests the ground for asserting itself for a way of effective learning. The group is an aggregation of individuals with different backgrounds, needs feelings, and ideas. Bringing them together is the act of forming a wealth of useful inputs, and teacher's job in this case is to help students express them, together with the teacher, and to build learning experiences around them. The maturity of an individual is reflected in an increase of interpersonal dialogue for the generation of knowledge and the development of group norms. As such, creation of a group by a collection of individuals releases the creative potential of the total membership. The students unite with the teachers to get the job done, which is much more satisfying than the situation in which the teacher tries to do the whole thing by himself.

The importance of group-centered approach can be viewed from a different angle. I must begin by saying that the process of consummation through interactions among group members resembles that of a scientist's invention: Under no circumstance scientific invention can be the product of a single person. It involves a ceaseless stream of dialogues with old as well as contemporary sages.

Hence, participating in a seminar provides students with exposure to the very process of learning and invention that a scientist experiences. Learning can not take place by one's engaging in monologue but by being open to dialogue with others.

The group-centered learning such as seminar is predicated on the premise that all members of a learning group have great untapped potential for participating in their own learning and that of their classmates. In this case teacher is not only teaching facts as ever but teaching students to think and be more independent and self-directing. He maintains his roles as expert resources while seeking to help students help themselves and their classmates. Such a teacher does not force his ideas as the only ones that are really worthwhile. What he does is to offer himself as a group member and a resource not only in subject matter but in communication.

Teaching at higher education institutions frequently takes the form of lecture or a combination of lecture and discussion on a limited sacle if any, with little attention paid to seminar or workshop. The latter in particular is regarded as the monopoly of graduate schools. Let alone the theory of developmental psychology, however, it is taken for granted that college students are in a stage which justifies the development of creative thinking and rational reasoning. Assuming the current practice to continue, we can not but assert a paradoxical argument that only graduate students – aspirants to scholarly career – deserve seminar or workshop-bound programs intended to serve this purpose. Even these people have already been deprived of much of the opportunity to develop the ingredients of scholarly quality by the time they reach the gates of graduate schools.

Although seminar or workshop by no means constitutes a trick that will work for anyone in any situation, it proved useful in opening new avenues of communication for teachers and students.

Conclusion

The typical drawback of teaching in college is that a knowledge is given as if it were never changeable. Perhaps, it may prove effective in transmitting the knowledge and norms of ancient times but it can by no means cope with new challenges in the contemporary world of new dynamism. The knowledge and norms which we are supposed to have are not a ready made stuff – that is, something to be handed down to others as it is – but an on-going process through which we address ourselves to emergent challenges. A knowledge we call "new" today will become obsolete in a matter of few years, bound to be replaced by another one. In such a way, an individual of modern society is confronted with kaleidoscopic changes which increase the uncertainty of the future. The world has moved from the static past to the turbulent, seething present where we have to learn to play a new game of dynamism. Hence, the anchor point of teaching is not on what is gone by but what is being made at this moment.

One central value in all good teaching should be that of student growth toward greater maturity and self-direction. This broad conceptualization of teaching suggests that there are myriads of ways to attain to this goal. Nonetheless, what passed for good teaching in the past still blinds us to new avenues, and it is considered the whole of what teaching is all about. Why does not the teaching itself emulate the process of discovery? Knowledge is not to be given but to be created through one's own experience.

THE UPS AND DOWNS OF INNOVATIONS IN U.S. COLLEGES AND UNIVERSITIES

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In this paper I shall discuss briefly 1) the events that led to the diversity and flexibility we see in American higher education today; 2) the examples of innovative changes in colleges and universities of the last two decades and earlier attempts, both those that succeeded and those that failed; 3) the elements that are critical for success; and 4) what might happen to innovations in the next decade.

The undergraduate innovations and changes that occurred in the nineteen-sixties and seventies that I will be discussing today are those that were initiated within our accredited colleges and universities – public and private, community colleges, liberal arts colleges, comprehensive colleges and universities, and research universities, including newly-created institutions. Alternatives to traditional higher education appeared in response to student and faculty demands for improvements in the undergraduate curriculum, the vastly increasing numbers of students, and the nationwide concern for increased access to higher education for people who had not been attending college in large numbers – working adults, women, minorities, low income people, the physically handicapped, and those geographically removed from college campuses. As you know, our adult population pursues its education in a variety of ways, and the majority of those who do participate in "lifelong learning" do so in settings other than in colleges and universities – in industry, labor or professional organizations, the military, or the community. Nevertheless, about 40 percent of the "organized learning opportunities" for adult part-time learners occurs in our colleges and universities. The number offering adult and continuing education has doubled in the last twelve years to more than 2,375.

Innovation and change in American higher education have been going on in one way or another for nearly three centuries. The second American college, William and Mary, adopted a reformed version of the classical curriculum of the first, Harvard. There are few institutions that are carbon copies of others. Each has its own unique faculty, student body, and administrative style. Even architecturally there may be some buildings that look much like those on other campuses, but the total campus will be different. Therefore, when ideas new to the institution come along, they are adopted in part and altered in part to suit that institution. Each institution has its own sense of individuality. And what is new to them, is new, even if familiar elsewhere. Innovation and diversity, then, are typical of our colleges and universities.

Changes and innovations initiated in the last century most important to us today are those that created a lasting impact on what we now see in our colleges and universities: graduate education; research emphasis tied directly to graduate education; government support of public higher education in the form of the land-grant college with its close ties to practical applications and greater access to higher education. Following the creation of the first real research universities after the Civil War, in the 1870's and 1880's, professional schools developed and grew. At the beginning of this century, community colleges came into existence and slowly spread across the country. At the same time, more and more people were graduating from high school, and more were entering the relatively inexpensive public colleges and universities. Even with the increase in college students the numbers were still relatively small and the student bodies relatively homogeneous. The twenties and thirties showed another spurt of growth of institutions. The most recent dramatic growth in the number of colleges and universities occurred in the sixties – nearly 700 institutions and branches were created, mostly community colleges. Enrollments more than doubled in that single decade to 8.5 million. Growth continued in the seventies, but at a slower rate. Currently enrollment levels are relatively stable with about 11.5 million students earning credits toward degrees in 3,190 colleges and universities.

Student dissatisfaction with educational institutions and the government developed in the sixties and erupted with varying degrees of intensity. Throughout the sixties and seventies all kinds of innovations appeared, some directly in response to student unrest, but many others in response to the emphasis placed on increased access to higher education. Just as the students were becoming more heterogeneous in increasing numbers, so were the educational choices open to them.

Unlike higher education in many other countries, most changes in the U.S. system are initiated at the local or state level in direct response to need or demand for change. The federal government influences changes indirectly, but has no direct control over higher education or its planning. After the second world war, the federal government has been more influential through its public statements of policy supporting equal opportunity and lifelong learning, through its financial support to veterans and other students, and through its support for research in higher education, including innovations. Private philanthropic foundations and national organizations have also affected higher education by funding research and supporting the initial periods of some innovations in higher education. This support from the public and private sectors at the national level has strengthened new programs and has encouraged others to be initiated.

Recurrent and new innovations

Let us stand back from the changes that have occurred in the last two decades to get a better perspective on their development, and the reasons for creating changes.

The wide variety of innovations that have been created over the years have involved many different kinds of mechanism to improve higher education in one way or another, causing our institutions to become more diverse and flexible. Some changes were designed to improve the curriculum by *integrating* it for traditional undergraduate students on campus (for example, revising general education), others *expanded* the curriculum to serve special needs of hitherto unserved groups of students (for example, Women's Studies), some altered the means of teaching and *learning* different from traditional classroom lectures (for example, self-paced learning through programmed learning or independent study through tape cassettes), others increased *access* to higher education by a variety of means (for example, weekend colleges for working adults), others recognized the need to provide *certification* of post-secondary learning outside traditional colleges and universities (for example, college credits given for college-level courses taken in industry), and finally, with the great increase in the forms of further education open to students it was important to develop independent agencies to counsel and advise prospective students with *information* about the variety of educational options available to them (for example, private educational counseling agencies). The following section has been organized to discuss the great variety of institutional responses and the ideas behind the creation of change. I shall select only a few examples of innovations from the list (inserted on the next page) to discuss today. If you are interested in some of the others I would be happy to discuss them with you later.

Integration of undergraduate curriculum. Throughout the history of American higher education there have been repeated attempts to improve the undergraduate curriculum. These efforts have taken two quite different forms: One extreme is to prescribe the curriculum so that all the courses taken by students make up a rational coordinated undergraduate program from the faculty's point of view. At the other extreme is a totally elective system which gives the student completely free choice of courses. In 1909 Harvard introduced majors and general education distribution requirements with six year-long courses in three fields outside the major subject. Since that time, Harvard has revised its degree requirements many times, as has been the case in other institutions – the pendulum swinging moderately between the extremes with sometimes more, sometimes fewer degree requirements. Just a year ago Harvard made the news again by revising its degree requirements to make them more rigorous, that is, with more required courses, than they had been during the sixties and seventies. So many innovations arise just by the swinging of the pendulum, from a freer to a more required curriculum.

Some of the innovations of those years were more extreme than the simple shifting back and forth of degree requirements within traditional institutions. A more extreme example is the interdisciplinary liberal arts adult degree programs started in the sixties. These programs assumed that adults had already had specialized training or did not need it, and what they really needed was a good general education in three areas: the humanities, the social sciences and the natural sciences. A fourth area of study for these students integrated these three areas of study through readings that were interdisciplinary in their approach, ending with a research paper. One example of such a program is located at the University of Oklahoma, and offers a Bachelor of Liberal Studies.

LIST OF INSTITUTIONAL RESPONSES FOR IMPROVING UNDERGRADUATE EDUCATION

Integration of undergraduate curriculum

- New curricula and new degrees in established institutions
- Experimental colleges in established institutions
- Three-year degree programs in established institutions
- Freshman seminars/courses in established institutions
- New institutions with new curricula and new goals

Expanding the curriculum

- Women's Studies, Ethnic Studies, Special studies for special group of people

Improvement of learning

- Self-paced, flexible spaced, time shortened
- Tape cassettes, TV, radio, newspaper
- Intense modules
- Competency-based learning and contract learning
- Multiple options for learning
- Cooperative work/study
- Mentors, tutors, community teachers
- Faculty development
- Student peer support

Improvement of access

- Part-time study, evening college, weekend college
- Re-entry programs and support systems within programs
- Off-campus learning sites with little campus-based study
- Low cost

Awarding credit for postsecondary learning outside traditional colleges and universities

- Examinations nationwide
- Certification by national agency
- Experiential learning

Expanding information about opportunities for prospective students

- Educational counseling agencies in communities, regions and states

This program, which began in 1960, has thrived with relatively small enrollments. Its peak enrollment was 1200 in 1975, and it is now about 450. One reason for the program's success is that it has been modified several times by adding new options which allow each student to pursue a special interest to some degree. Distinguished senior University of Oklahoma faculty were involved in the design of the program originally and continue to serve on its faculty, which is another reason for its continued existence. Note too that a different degree is offered in this program for part-time adult students: a Bachelor of Liberal Studies, not a Bachelor of Arts. This difference from the on-campus programs for the traditional younger full-time students helped to establish the program in the first place.

Another means used by established institutions to integrate the curriculum has been to establish experimental colleges within the university offering a largely prescribed curriculum. For example, in 1927 a college was established in the University of Wisconsin with a radically revised curriculum in the first two years designed to integrate knowledge and experience. Again, senior faculty and administrations were involved in the planning, and the faculty had joint appointments with the college and their own departments, but enrollments were very small – 155 at its peak. That college closed five years later because with its small enrollment it was financially unsound, the rest of the Wisconsin faculty were antagonised by it, and its own faculty were dissatisfied with it. They were unable to agree on what the nature of the program should be or how they should gauge student progress in the college. Moreover, the teachers were torn between conflicting loyalties to the college and their departments. A coalition of politicians, faculty, and fraternities closed the college. Thirty years later the Wisconsin program was duplicated on the Barkeley campus of the University of California. That experiment only lasted four years. A number of factors led to its dealth: for one thing, the curriculum was prescribed by the faculty just at a time when student power was at its height. In addition, the involved faculty had to spend so much time with the students that they had no time for their own research and thus could not get promoted. The enrollment was small (150) by design and not allowed to expand by the university; although the president, Clark Kerr, supported the program, Berkeley's faculty and administrators were suspicious and critical. Less than ten faculty members were involved in the program, providing too small a power base for the college. It just was not big enough to survive the criticism of more traditional professors.

The final example I have selected under the heading of "Integration" is that of new institutions created with a new curriculum and with new educational goals. Reed College, a private liberal arts college in Oregon, established in 1910, continues to provide a rigorous undergraduate liberal arts program that stresses independent study and scholarship. The curriculum there is designed by each student. It is the student who must formulate his own educational objectives. The subjects of study are traditional, but the way they are put together is not. It is recognized that the successful student at Reed is mature, highly motivated and self-directed. These qualities are also important in the newer student-oriented institutions that were created in the late sixties and early seventies. One of these was Hampshire College in Vermont where residential students determine their own program of classes, make up their own tests, and move their own degree programs at their own speed. For the first two years of college each student studies in the broad areas of the humanities, communications, natural and social sciences, usually in small seminars. Following that is a concentration in one or more subject areas, and the final requirement is a thesis or research project. A more informal structure is found in an institution like Evergreen State College in Washington State where a variety of options, including credit for work and experience off-campus, are available.

Two other examples of student-centered new institutions must be mentioned here because their structure is different from the first two: Empire State College in the state of New York and Metropolitan University in Minnesota. Neither has a campus. They are nonresidential therefore, and thus attractive to adults who hold jobs, have families and their own homes. The students are given credit for past informal educational experiences as a part of the degree program, and again, the student designs his own program with his advisor. The possible learning situations are many. The few full-time faculty play an unconventional role: they are educational advisors. Few of them teach, as we understand that traditional role, although students do learn from them. In fact, at Metropolitan classes for students are taught by professional people who work in the community – lawyers, teachers, social workers or other college teachers who teach only part-time in the university. At Empire State, if a student wishes to learn in a classroom, he takes courses at some other college or university. Empire State's chief mode of instruction in their individualized study program is through independent study at home, work, library, or museums, sometimes with a tutor. Programmed instruction, learning modules specifically designed by Empire State staff, and correspondence courses are also used by students.

These new institutions are particularly interesting because they are publicly supported and were seen as a desirable alternative kind of university by the state at the outset. With its several learning centers throughout the state of New York, Empire State has the largest enrollment of the four I have mentioned; about 3400. Although small in comparison with other public institutions, it is not the smallest college in the State University of New York system of colleges and universities. For the first time, this year, Empire State has been asked to reduce its faculty slightly – something other colleges in the state system had to face before this year because of financial constraints in that state. I see this as evidence of the wide acceptance of this ten-year-old institution and its nontraditional program by the state and other institutions.

Improvement of learning. Many means have been tried to improve learning for the student, young or old, at home or in a classroom. Most of the innovations of the seventies allowed the student to proceed through his studies at his own pace, in some cases within a course, in others throughout the entire degree program. The liberal arts adult degree program at the University of Oklahoma, that I mentioned earlier, involves independent study at home for most of its program, except for a required three-week residential seminar once a year. Independent study is an integral part of the learning process in many programs.

Programmed learning is a form that allows students to absorb small units of knowledge in a regular order, with quick feedback to students, and is used in many traditional as well as nontraditional institutions. Sometimes these learning units are on audio or video tape cassettes.

As far back as 1825 a major change made in the curriculum at Harvard was the introduction of some self-pacing in the study of modern languages. The experiment was a success, but the reform failed because most of the faculty were opposed to it. In 1902, Harvard initiated a three-year degree for students who were able and prepared to do four years' work in three. This idea is another that reappears from time to time and the means to that end has varied. In the nineteen-fifties, selected high school students could take college-credit courses in some high schools. In the sixties and seventies changes in the college curriculum allowed average students to complete their undergraduate work in three years. Currently, few students are attracted to a speeding up of their college experience, except the superior students who want to enter graduate school as soon as possible. This recurrent innovation for shortening the time to earn a degree is less popular just now. But the idea of a flexibly-paced program of studies for a degree is widespread.

The initiation of competency-based learning is another widespread alternative that probably will survive because society as a whole is more concerned about accountability than ever before. Under this plan degrees are awarded on the basis of the skills attained by the student rather than the accumulation of credits. Students understand what skills and knowledge are expected of them, and faculty must be explicit about their goals in teaching. Usually a contract is designed by the student in consultation with his faculty advisor, detailing the educational goals to be attained, by what means, and the criteria to be used in evaluation of the student's success.

The final example I'll use for innovations that aim to improve learning is the use of the mass media such as television, radio, and newspaper courses which allow students to study in their own home. This option is more suitable for general education that is traditionally a part of the first two years of a college curriculum than for transmission of specialized learning. Thus, it is not surprising that use of the media is more common in our two-year institutions, and less common in our four-year colleges and universities, where independent study is more commonly offered through correspondence courses. Producing courses on television is complicated because it requires a blend of technological and academic expertise. When students study at home, something must be done to find ways to give them personal help and support. Both the Open University of the United Kingdom and Coastline Community College in California recognize this and make a coordinator, instructor or facilitator available to students by phone. To be effective and maintain the student's interest, the production of such courses may be expensive. The Coastline Community College is still relatively new, but it currently enrolls over 18,000 students in its television and off-campus courses.

Improvement of access. Adult part-time students have been accepted in many American colleges and universities throughout this century. It was in 1909 that City College of New York initiated a degree program allowing people to take courses at night. We currently have 2,331 institutions offering degree credit classes at night – 73 percent of all institutions but night classes are more common in the public institutions than the private and most common in our public community colleges. By the early seventies over 60 percent of the public four-year colleges and universities allowed students to study part-time for the entire degree program, by attending classes during the day, the evening or on weekends. Most offered traditional courses at a more convenient time and/or place for working adults. Currently, 79 percent of the public four-year colleges and universities offer credit toward degrees for evening classes they provide.

As more adult students were recruited, many institutions discovered that some of these students needed special help to overcome fears of returning to the classroom or to improve academic skills that had been forgotton or unused for many years. Re-entry or orientation programs were created to ease the adults' return to college. The staff in the orientation program may assess the skills of the student and advise students on the ways they can improve their skills if necessary, provide information on how to study independently, advise the students how to design their own programs, or show them how to write contracts for their educational programs. These kinds of support services have been found to be important in all of the innovations designed for adults, even the on-campus traditional academic programs.

Extending the campus program to other places off-campus to accommodate students has met with varying success. When this has been attempted by research universities, there are conflicting forces that make its success uncertain. The program must be of the same quality as the on-campus program. Unless some regular on-campus faculty are involved the off-campus program is likely to lose support from the institution. But when on-campus faculty are teaching off-campus, thus ensuring quality, the faculty may become dissatisfied because they must spend so much of their time away from their research and their colleagues.

Other off-campus learning sites have been mentioned earlier: independent study at home with brief campus residence as in the adult degree programs, study on the job or classes provided at place of work, or any suitable location as agreed upon by a learning contract.

The last two categories on my list represent new movements that are important innovations on the American scene with ever-widening acceptance. Because there is no time, I will just mention in passing that even here there is some evidence of earlier concerns in higher education. Earning credit toward the degree by taking examinations has been possible in the past, generally on an individual basis agreed between the student and the faculty member. What is new is that an entire degree can be earned this way, and that through standardized tests and nation-wide testing centers, this option is available to many of our citizens.

With the enormous number of different educational opportunities open to adults in the last two decades, the need for organizations, independent of colleges and universities, to provide information to the public on educational and occupational matters became apparent. The idea of an educational brockage agency has gained popularity recently and has been implemented in various communities and regions, although it first appeared in 1891 when the Educational Exchange of Greater Boston was created to advise and counsel adult students.

Thus innovations wax and wane as society and educators change.

Elements critical to continued success of innovation

Although there are differences among the many innovations mentioned earlier, certain conditions must be met for them to be termed a "success". An innovation must

- Genuinely fill a gap or improve the status quo
- Maintain the educational philosophy which was the basis for innovation
- Have goals that are compatible with those of the higher education authority (the state, institutional faculty and administrators) to which it is responsible
- Be financially sound
- Command respect by its students, faculty and some, at least, outsiders for its academic integrity

Note please that not included here are terms that are often used to label failure: does not have large enrollments, has altered its program, has ceased to exist. Often enrollments projected in the proposal of a new program are vastly overestimated either for political reasons or because the planners have simply been unrealistic. As long as the conditions are fulfilled of being financially sound and having filled a need not otherwise met, the program should be seen as a success. Often as a program matures certain changes are necessary, but as long as these are primarily administrative and the educational philosophy of the program is not compromised, the program is not a failure. Programs that cease may be considered successes if they filled a need, and by so doing were no longer needed. A short-term program is usually characterized by having a limited curriculum for specific kinds of students -- workers in a particular industry, for example.

Some programs cease because they are academically unsound as college degree programs. This sometimes occurs in off-campus centers where the host campus cannot control the administration of the program. Financially, an innovation may be too costly, and although it is socially sound, the academic quality of the program is far lower than that demanded in the host campus. In cases where improving the academic quality would prove too costly or would affect the educational philosophy of the program, it must be discontinued by the host campus.

Another example of programs that have been discontinued are those where most of the conditions that constitute a success existed, but not to a high degree. When that program is housed in a research university with many distinguished and conservative faculty members who do not share nor deeply respect the educational philosophy of the program, approval for the continued existence after the trial period may not be forthcoming.

Some innovations are no longer seen as innovations because they have become a part of the institution itself. When options in special programs are adopted by other programs, they no longer seem innovative. Even when programs cease to exist as separate entities, the faculty and students who were involved are likely to use their experience later on. Through diffusion such changes can become widespread and often escape notice as innovations.

Involvement of the faculty institution-wide in planning and teaching in innovative programs in existing colleges is absolutely crucial to survival of the innovation, as is the support and involvement of the administration. Without the support of the administration and the college faculty, the program will be vulnerable to attack because it is "different." Only strong leadership within the program and without can help it to survive if it is attacked.

Finally, just because an innovation does not fully live up to the idealized version originally proposed does not condemn it as a failure as long as it continues to provide an educationally sound alternative to the status quo and is financially stable – that is, does not consume financial support at the expense of other programs.

The future of innovations

Since innovations and reforms have been typical of the past, should we expect them to be so in the future? Yes and no. There is a small quiet academic revolution in progress in the United States at present. Some of the innovations discussed here today will continue to change shape as they respond to the market.

Those who might not expect much innovation in the future argue that with increased financial constraints, our past practice of adding innovative programs to existing programs cannot be continued. If changes must occur, then it will have to be done by substitution. That may be so but it does not negate innovation.

The major threat I see to innovation is the loss of diversity among our institutions because of financial stringency coupled with reduced enrollments that will particularly affect our small institutions. At this time it is those little institutions both private and public that are trying out new ideas for their very survival. The middle-sized colleges, with their emphasis on undergraduate teaching, are also in the forefront of experimentation. The tension between the established traditional education and innovation, added to the intense competition for students among institutions that we already see developing, will threaten the weak and the small. To lose the weak academic program is good in our market-driven society. But to lose the small but valuable program does not serve society well and definitely begins to erode what we value as diversity in higher education.

Changes are expected by those who believe in the quiet revolution because of the greater attention paid to the adult learner, and other students still not successfully served by our colleges and universities in large numbers. While the colleges and universities may be ready for it, the concept of lifelong learning has not yet really taken hold in the U.S. except by the already better-educated adult, but when it does, our traditional institutions will be least likely to attract the older adult in significant numbers in degree programs. Our colleges will face strong competition from industry, business and elsewhere.

As in the past, we can expect another redefinition of general education and another in the humanities. Innovative programs to combine practice and theory will probably gain ground. And with our concern presently with faculty development, and concern also with student-centered issues, the cencept of the master teachers, those who can serve as models for others, may be developed to the point where they can be identified and used. And our increased concern for accountability might lead to more competency-based programs.

All in all, the past two decades have been extraordinary years in the history of our higher educational institutions. We have again reached a plateau and can look forward to the full acceptance into our institutions of some of the past innovations, and to new ones on the horizon. Most of all, it is exciting to be living in an age when many educational opportunities are opening up outside of our colleges and universities at the same time that our colleges and universities are becoming more accepting of alterations within the system. With uncertain economic conditions and enrollment patterns ahead of us, our readiness to create new forms of higher education, to try them, and to accept them into our colleges and universities may be a critical feature of our system in the decades ahead. Diversity and innovation together are the cief resources of American higher education as it faces an uncertain future.

LINKAGES BETWEEN UNIVERSITIES AND NON-UNIVERSITIES

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The need for close relationships, linkages, within national educational systems is of crucial importance if nations are to fulfill their educational obligations. Cooperative planning and execution of the education/learning process are essential at a time when financial capabilities are weakened by inflation and multiple demands on the economy, and when pressure continues to mount for universal access to higher education. Partnerships in higher education, a phrase connoting close rapport of professionals and politicians, are vital in reestablishing and sustaining reputations and improving the services of inadequate educational systems.

This is certainly the challenge facing the United States as we strive to meet the responsibility of universal access and to maintain quality in the enterprise. In recent decades, postsecondary institutions have not kept up with the rapid changes taking place in the society. Except for certain notable exceptions, colleges and universities have remained static and inadequate in terms of relevance and flexibility. The loss of public confidence has worsened the situation.

The determination to improve relationships between community and junior colleges (non-universities) and senior colleges and universities is fortunately gaining momentum. Through the academic transfer function, a prominent responsibility of non-universities in the United States, community colleges and universities have opportunities to develop course and credit linkages to enable students to move from lower to upper division without loss of time or units earned toward degrees. This relationship called "the transfer process" is a logical and normal affinity. "Articulation" is the term given to a series of processes which should accompany the mechanics of transferring courses and units; such as. matriculation and admissions, orientation of students moving to a different institution in the middle of their degree programs, counseling and career advising which should accompany the decision to move, financial help, housing, and other necessary considerations.

Machinery for smooth transfer is vital, but institutions, both those which send and those which receive students, must also provide services mentioned so that students transferring are not disadvantaged.[1]

The systematic linkages referred to as articulation/transfer are often neglected or mismanaged in the very societies professing to support the concept of mass education. Policies may be too rigid and lacking consideration for students wanting to move from one system to another (non-universities to universities or the reverse) or within a system (from one non-university or university to another). Rigidity characterizes a relationship that fails to respect alternative positions. Before articulation/transfer linkages can be successfully developed, an understanding of institutional responsibilities is necessary. Master planning or recasting of existing policies should have highest priority.

The importance of flexible articulation/transfer policies and procedures can be illustrated by some well-known facts on student mobility in the United States. More than one million move one or more times during an academic year. Although enrollments remain generally static across our nation, the itinerant or mobile student phenomenon continues unabated. Accounting for high school senior's plans, the National Center for Education Statistics indicated in its 1976 report that 30 percent wanted to begin postsecondary studies in a two-year college and then transfer to a senior institution. This figure was compared to 22 percent who went directly to a senior college or university [2]. Expanding educational opportunities for the mobile population is a large and complex, if not a profitable business.

Who are these students? In addition to the regular high school graduates, are those who move from a non-university or university to a similar institution or within a large system, such as the University of California with nine campuses; the vast army of adults returning to formal education, some after years of lapsed time; those who transfer in reverse from universities to community colleges and later seek university status once again; and adults seeking advanced standing credit for prior learning experiences – a most complex development.

It is crucially important to reach agreement on basic organizational and pedagogical relationships which protect the integrity of all institutions exchanging students. The remainder of this discussion will focus on efforts to improve articulation/transfer linkages, with particular references to non-traditional students.

Progress can be identified in several dimensions: (1) guidelines and policies developed by state commissions or agencies, (2) documents in form of equivalency guides issued by universities, and (3) agreements negotiated by individual colleges and universities.

Guidelines and policies developed by state commissions or agencies

Virtually all 50 states have developed guidelines and/or policies on transfer, and some on articulation matters. While the need for state level guidelines and coordination is undeniable, policy determination of a specific nature and operational procedures should remain the preogatives of institutions. Although the balance between state government and institutional authority is critical, success of agreements depends primarily on inter-institutional or inter-segmental cooperation. Professional educators, not politicians, are best equipped to determine such details. In the United States, however, the power is shifting from institutions to the state, and from coordination to control. This authority change is likely to result in policies written with sameness. Uniformity of all public institutions leads toward diminishing options for transfers. That is our greatest apprehension.

Agreements now authorized in a number of states represent noteworthy progress – shifts in philosophy from exact duplicates of university courses required for acceptance at the point of transfer, to similarity of material taught in non-universities. This is the yard-stick used in negotiating transfer agreements. The general acceptance of the associate degree or a general education package as offered by non-universities is the prevailing direction.

The State of Florida was the first to reach a statewide agreement (in 1965 and reconfirmed in 1971) that programs rather than courses would be uniformly transferred among the state's public instructions. At the heart of the plan is the associate in arts degree awarded by community colleges which includes 60 semester units of academic work exclusive of occupational courses and a 36 semester unit general education program. The exclusion of occupational courses is a limitation.

Policies pertaining to acceptability of vocational-technical course credits are conspicuously absent in most statewide pacts. Acceptance is gradually spreading, but on an inter-institutional basis primarily where baccalaureate degrees are developed to build on the initial work provided by community colleges and technical institutes.

Most of the states follow the Florida rationale – requiring or strongly recommending completion of the two-year degree before applying for transfer. The *Massachusetts Compact* is, however, quite explicit, indicating that while the associates degree is considered as the basis for transfer, the degree is taught of as one small step toward a policy accepting non-associate degree graduates. The ideal agreement would eventually include consensus statements on students applying to transfer individual courses as well as packages of courses prior to completing degrees.

The *Ariticulation Agreement and Guidelines* in the State of Michigan was also not intended to limit student mobility to the completion of the associate degree. One of the unusual features of that state committee's interpretation of the pact is that while the attainment of a two-year degree may be desirable for most prospective transfers, individual objectives and circumstances are best considered by allowing maximum flexibility in determining the time of transfer.

The *Illinois Baccalaureate Articulation Compact* now being reviewed by institutions in that state also uses the associate degree as "legal tender." Completion of the two-year degree is to be equivalent to lower division under certain qualifications. The most important of these is a 36-unit general educational pattern in four areas. All 60–65 units of associate degree work must be baccalaureate degree oriented. The core curriculum approach developed initially in the State of Georgia and several years later in Texas stresses completion of a core program rather than the degree earned in community or junior colleges.

The Ohio guidelines feature a "one-plus-one" provision in which one year of work in a technical program at a technical institute is accepted in full by another, and the two years accepted by a senior institution toward baccalaureate degree credit. But like most other statewide agreements, non-associate degree transfer is evaluated on a course-by-course basis.

According to a plan recently authorized in the State of Oklahoma, certain courses taught in two-year colleges are acceptable for upper division credit.

This represents a major breakthrough for community colleges which normally are restricted to lower division work only.

While the plans now in operation vary considerably in approaches to improving inter-institutional communication, preserving institutional integrity, and allowing greater flexibility in advance standing credit, all documents cite specific state commissions or agencies as responsible bodies in matters related to articulation and transfer. State authority is dominant.

Documents in form of equivalency guides issued by universities

In recent years, course equivalency guides have been appearing as supplements to or in lieu of state or institutional policy. Frequently initiated voluntarily by an individual representing a college or university, these documents serve as reference texts for counselors and students. They ordinarily avoid detailed explanations of admissions and degree requirements. In addition to providing specific course equivalencies, they also serve as catalysts encouraging inter-departmental and inter-divisional communication between sending and receiving institutions. The equivalency guides are useful in establishing credibility and thrust between universities and non-universities.

A recently published *Higher Education Equivalency Guide* by a volunteer group of educators in the State of Arizona contains community college course and credit equivalencies accepted by the three major state universities. The University of Alabama *Guide to Equivalence and Transfer of Junior College Credit* is a similar document. Applicability of junior college credits is coded according to the various university schools and colleges. The Kentucky *1978 Transfer Guide* includes questions and answers about transferring grades and credits and institutional transfer profiles.

Volunteer organizations continue to be responsible for articulation/transfer developments in Michigan and California. The Michigan State Articulation Committee serves voluntarily as does the California Articulation Council. Membership in both organizations is representative of a cross-section of public and private higher education. While suffering the problems of financing, timing, and lack of full authority, both groups feel strongly that voluntary cooperation will in the long run be more effective in solving issues and promoting the free flow of students than will legislative edict.

Agreements negotiated by individual colleges and universities

In states such as California where state commissions have not as yet assumed responsibility for articulation and transfer, agreements are negotiated and continually upgraded by individual universities and non-universities. Universities receiving large numbers of transfers from community colleges must eventually develop a system for recording, displaying, and communicating policies and procedures. Some of these techniques are quite specific, the most prevalent being the arrangement of course and unit equivalencies in corresponding columns according to fields or disciplines. Others are less specific, such as displays of course sequences in lower and upper division work at both sending and receiving institutions. These may include categorical listings of subject fields and descriptive rather than actual course titles and numbers. The latter style is more popular in occupational-career program transfer statements where subject areas instead of courses appear to be more appropriate. As an example, the reports of programs articulated between the University of Maryland and most of the state's community colleges contain all of these elements.

As the transfer phenomenon grows in applicant volume and programmatic diversity, record keeping and the dissemination of accurate and current information become increasingly difficult and expensive. A computer-assisted system under development in California involves the California State University and Colleges and California Community Colleges. The system will include a centralized computer facility for processing, storing, and producing equivalency agreements and receiving terminals on cooperating campuses. Curriculum major sheets will display the university major and support courses and parallel community college courses. These sheets from the basis for the computer programming. In addition to the clearinghouse function and retrieval speed advantages, the flexibility of these systems is an important asset. Changes in agreements can be made inexpensively and without disrupting a printed document. Many viewers can be simultaneously accommodated and a number of institutions may be consulted at a glance.

Reference should also be made to the development of upper-level universities or colleges – the newest type of collegiate enterprise to provide a natural connection between postsecondary systems. Now found in at least a dozen states, the upper-level university which does not enroll lower division students, represents a critical linkage between two-year colleges and the doctoral-granting universities. Continued success of this structure depends upon cooperative planning and a carefully organized communication system. Upper-level universities are striving to exact a more realistic balance between theoretical and practical education, to avoid the urge to become research universities, and to accept the opportunities to relate directly to community colleges which furnish virtually all of their students.

The proliferation of external degree programs is another growing phenomenon which complicates the transfer of courses and credits. New institutions without formal campuses and full-time faculty are now delivering education programs wherever there is an expressed need. Like the clientele they appear interested in serving, these schools are also mobile and flexible. Old institutions, to compete successfully, are diversifying traditional degree patterns to fit irregular schedules and even to honor prior learning experiences, as expressed in a certain number of degree credits.

California is one of the more liberal states in allowing external degree programs to operate within its borders. Many others have initiated restrictive legislation to protect the traditional colleges and universities. While some external programs are light and a few even diploma mills, others are meritorious. It is very easy to interpret the emphasis on flexibility as weakening the academic fiber. We should acknowledge the fact that some of the newer professional degree programs including those given externally, may well be more relevant and viable than some of the traditional programs offered by established institutions.

Undergraduate and graduate degrees are offered by some of the nation's best known cooperations. The Rand Graduate Institute doctoral program in policy analysis, apparently the only accredited Ph.D. curriculum operated by a private research cooperation, is in its seventh or eighth year in Santa Monica, California. The degree curriculum is jointly administrated by Duke University in North Carolina. Massachusetts recently authorized an M.B.A. in Management offered by Arthur D. Little Corporation, the prominent worldwide consulting firm. Industry is rapidly increasing corporate budgets to build educational programs, some with general education components, and through the legitimating system of accreditation, these are gaining official recognition.

The Center for Degree Studies in Scranton, Pennsylvania, specializing in career-oriented instruction through guided self-study, is the first proprietary non-traditional postsecondary agency to be accredited. Following the Regents External Baccalaureate developed by the State University of New York, the Connecticut Board of State Academic Awards now offers associate degrees on a statewide basis. One of the best known of the newer organizations is the University-Without-Walls of the Union for Experimental Colleges and Universities which is composed of 31 institutions in various states.

Academic degree granting is, in the eyes of the user, the sacred trust of traditional colleges and universities. Fortunately, there are signs that point to a reawakening of our tradition-bound profession. Flexible scheduling and programming are now practiced. Residence requirements are being relaxed and attention is being given to credit for prior or experiential learning.

For example, many colleges and universities are now exporting full degree programs, both undergraduate and graduate, and some specialize in overseas education to serve the millitary. The University of Maryland is the most experienced of the senior institutions. The Los Angeles Community College District (in the Western and South Pacific through its Metropolitan College) and the Chicago Community College District (in Western Europe) are the community college leaders.

The Servicemen's Opportunity College established in 1972 is by far the most extensive organization serving educational needs of the military at home in the United States and overseas. Solving articulation and transfer problems is a major consideration of SOC leaders. Institutions belonging to this organization (some 350 of them) subscribe to criteria including a variety of support services and policies to minimize loss of credit and to avoid duplication. More than 250,000 participate annually.[3] The latest feature of this program is a system of SOC institutional networks offering cooperative associate technical degrees alligned with military occupational specialties. Maximum credit is given for technical competencies learned in the military, and such credit is exchanged among cooperating colleges. A similar arrangement is in the planning stages at the baccalaureate degree level.

However, the usability of externally earned units and degrees is still a transfer question. How does UCLA reply to a request for advanced standing credit from accredited universities such as Nova in Florida and Lindenwood in Missouri, or from industry, including Bell and Howell or AT&T? Acceptance by examination only is a logical answer, but not a very innovative policy.

Immaginative transfer arrangements must be negotiated with university faculties recognized for their strong conservatism.

Individuals seeking advanced standing credit from non-traditional organization are turning to educational brokers to help them search out cooperative degree granting institutions. Brokers are interceding for clients with credits from unaccredited schools, industry-sponsored education, and external degree programs, as well as prior or experiential learning considered by clients to be worthy of academic recognition.

In California, at least 11 different brokering organizations have been identified. About half of these represent more than one institution. One of the largest educational brokerages contracts with three institutions and maintains offices in 106 locations.[4] Issues of propriety and quality are asked. To what extent are brokerage/university relationships proper? Has the state a roll to play? Does the emphasis on brokering affect the quality of institutional programs?

Even more evasive and complex is the usability of prior or experiential learning. Agreements in this arena are difficult to negotiate because faculties are called on to break highly cherished academic traditions. Universities often turn to the regional accrediting agencies for help. In recent years, these agencies have made progress. Commission handbooks now include references to experiential learning with specifications for preparing institutional self-studies. The Southern Association of Colleges and Schools has adopted the guidelines for good practice prepared by the Council for the Advancement of Experiential learning.[5] The check list of principles of good practice provides an overview of the task facing faculties. Cooperating schools, some 300 of them, use the Council's materials in developing criterion standards and assessment procedures. In a 1978 statement, the American Council on Education Task Force on Education Credit and Credentials urged that institutions develop policies for granting experiential learning credit. Endorsed by the Council on Postsecondary Accreditation, the American Association of Collegiate Registrars and Admissions Officers, and the American Council on Education, this document provides a series of 15 recommendations which should be used in developing a rationale for inter-institutional agreements.[6]

Faculties must first reach consensus on a philosophy for experiential learning which falls within the preview of institutional purposes. What is college-

level learning ? is one of the initial questions to be answered before units and credits are negotiated. Two publications of the American Council on Education are widely used in determining criteria:
The National Guide to Credit Recommendations for Noncollegiate Courses, and *The Guide to the Evaluation of Educational Experience in the Armed Services*. Both provide direction for developing valid and reliable evaluation of student achievement which, after all, is the *sine qua non* in awarding credit of any type. Techniques for assessing prior learning particularly during the initial applicant step of preparing a portfolio are reviewed in recent issues of a quarterly book, *New Directions for Experiential learning.*[7]

Agreement on appropriate documentation of experiential learning is another difficult issue. Inconsistencies and inaccuracies in transcripting procedures are widespread. Narrative transcripts reporting experiential learning frequently lack degree prerequisities, the amount of credits to be awarded, and other vital details.

The overriding challenge we face in articulation and transfer is first to clarify the role of non-traditional postsecondary education, and then to establish viable relationships between the traditional systems and unorthodox organizations now serving large numbers of adults. One of the constructive signs may well be the apparent interest of academic senates in becoming directly involved in the business of transfer processes. While some will remain on the conservative side, others will push to extend programs and services for categories of students heretofore neglected.

The key to success in all of the complex relationships discussed is directly related to the concept of partnerships in higher education – relationships that demand increasing communication between and among institutions and governmental agencies. Linkages are indeed necessary for progress, if not for survival.

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